

The Evidence on Government Competition

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Unfortunately, the existing literature does little to settle the debate on the social benefits of government competition. Only the literature on primary and secondary education provides clear and convincing evidence that competition influences government behavior.

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Society clearly benefits when businesses compete. Competition forces firms to innovate and adopt least-cost methods of production. It rewards efficient producers and punishes inefficient ones. As such, competition is a key to economic prosperity in a market economy.

The jury is still out on the social benefits of government competition, however. On one side of the debate are economists who argue that competition encourages governments to allocate resources efficiently and limits the fire-building inefficiencies of governmental bureaucrats. (For seminal articles, see Tiebout 1956 and Brennan and Buchanan 1980.) On the other side are economists who argue that competition among governments amounts to little more than a zero-sum game in which governments squander resources chasing after mobile firms and “race to the bottom” in providing social services (for examples, see Burstein and Rolnick 1995 and the discussion in Oates 1999).

Given the competing theories, the social impact of government competition becomes an empirical question. Not surprisingly, a large economics literature has sprung up to explore the premise that governments facing intense competitive pressure from other service providers behave differently than do governments facing little or no competition.¹ This literature defines competitive pressure broadly to encompass not only horizontal competition among comparable governments or pieces of governments, but also vertical competition among different levels of government and external competition between public and private service providers. For example, when providing police services a typical city government can be viewed as competing horizontally with the police departments in other city governments; vertically with the county sheriff, state highway patrol, and Federal Bureau of Investigation; and externally with home security firms and private detective agencies.

The three most important government behaviors that have been studied in the context of competition are government size, service quality, and productivity. Unfortunately, the existing literature does little to settle the debate. Only the literature on primary and secondary education provides clear and convincing evidence that competition influences government behavior.

COMPETITION AND GOVERNMENT SIZE

Brennan and Buchanan (1980) argue that bureaucrats have a self-aggrandizing interest in big government that can be at least partially

controlled by competition among governments. Their Leviathan theory predicts (among other things) that governments will be largest where competitive discipline is weakest. On the other hand, Anderson and Tollison (1988) argue that monopoly governments may restrict their output to earn economic rents, implying that competition could be associated with desirable increases in government size. In addition, Oates (1985, 1989) observes that fragmented governments could be too small to take advantage of economies of scale and, therefore, that the public sector could be larger where there are many small governments, despite presumably more competition among governments.

A substantial empirical literature has sprung up to explore the relationship between competition and government size. In this literature, government size is typically measured as tax revenues or government spending, deflated by a measure of population, personal income, or gross area product.² Researchers generally do not distinguish between governments that are larger because they provide many different services and governments that are larger because they provide large quantities of any given service. However, a number of researchers partially address this issue of governmental scope by differentiating between general-purpose governments (like counties and municipalities) and special-purpose governments (like school districts). While variations in the size of general-purpose governments could reflect variations in the scope of government activity, variations in the size of special-purpose governments probably do not.

The literature falls roughly into two camps—studies of the size of the public sector and studies of the size of individual governments. The public-sector literature examines the relationship between the degree of competition within a geographic area and the sum of government activity within that area. For example, it might relate the degree of competition among all governments within a county to the aggregate spending of all state, local, and national governments within that county. The unit of observation is a market for government services rather than any particular government.

In contrast, the individual governments literature examines the relationship between the degree of competition in a geographic area and the size of individual government jurisdictions within that area. For example, this literature might relate the spending of county governments to the degree of competition in their respective metropolitan areas. The unit of ob-

servations is a specific government like a city or school district.

Size of the Public Sector

Public sector size has been examined nationally, regionally, and locally. As a general rule, the Leviathan hypothesis receives its strongest support from analyses at the local level.

Oates (1985), Heil (1991), and Anderson and Van Den Berg (1998) use cross-country data on nations to examine the relationship between competition and the size of the public sector. They treat the central government's share of total government activity as a measure of competitive pressure. Assuming that spending (or revenues) is the relevant measure of market share and that governments compete vertically as well as horizontally, their approach is analogous to measuring competition with a single-firm concentration ratio. None of these researchers finds any evidence at the national level that competition affects the size of government.

Studies at the state or provincial level suggest more of a relationship between competition and government size. Oates (1985) and Grossman (1989) find no correlation between the aggregate number of governments in a state and the size of its public sector, and Oates (1985), Di Matteo (1995), and Nelson (1986) find no relationship between the size of the nonfederal public sector and the state or province's share of that market (another form of single-firm concentration ratio). However, when Nelson (1986, 1987) distinguishes between general-purpose and special-purpose governments, he finds evidence that state and local government is larger in states that have fewer general-purpose governments per capita. Furthermore, although Nelson finds no such relationship for special-purpose districts, Kenny and Schmidt (1994) and Bell (1988) find evidence that the public education sector is larger in states with relatively few school districts (per student in the Kenny and Schmidt study, per mile in the Bell study).

Eberts and Gronberg (1988) and Zax (1989) replicate Nelson's analysis at the local level. Zax focuses on counties, while Eberts and Gronberg examine metropolitan areas as well as counties. Both find evidence that competition among general-purpose governments reduces the size of the local public sector. Both also find that an increased number of special-purpose governments increases the size of the local public sector, an effect they attribute to a failure to exploit economies of scale. Eberts and Gron-

berg (1990) reach similar conclusions when they extend their analysis of metropolitan areas to differentiate between suburban governments, central cities, and other jurisdictions.

Hoxby (1994a, b) also examines the size of the local public sector in metropolitan areas, but she restricts her attention to the education submarket. As in analyses at the state level by Kenny and Schmidt (1994) and Bell (1988), she finds that average per-pupil spending is substantially higher where the public education sector is highly concentrated (Hoxby 1994b). She also concludes that increased external competition from private schools reduces the size of the public school system, but only because it reduces the number of public school students (Hoxby 1994a). Hoxby finds no relationship between private school competition and average per-pupil spending.

Size of Individual Governments

As a general rule, competition does not appear to limit the size of individual jurisdictions. Forbes and Zampelli (1989) find that county governments are larger in metropolitan areas with more competing county governments. Similarly, Santerre (1991) finds that city governments are larger in metropolitan areas with more cities. Eberts and Gronberg (1990) find that central cities spend less on fire, police, parks, and sanitation in metropolitan areas with more municipalities (suburbs and central cities) but find no such distinction when size is measured by local tax revenues. Schneider (1989) finds a weakly negative relationship between municipal employment and competition, and no significant relationship between municipal wages and competition. Brokaw, Gale, and Merz (1995) conclude that school districts facing strong private-sector competition spend less per pupil than other school districts, but their evidence is not fully persuasive because in their study low public school spending may be a cause rather than a consequence of private school enrollment.

Taken as a whole, the evidence on competition and government size is best described as inconsistent. There seems to be an important distinction between general-purpose governments and special-purpose governments. Analyses at both the state and local level suggest that competition among general-purpose governments reduces the size of the aggregate public sector, while competition among special-purpose governments may increase it. Researchers who examine the size of the public sector's component jurisdictions find just the

opposite, however; competition is associated with increases in the size of general-purpose governments. Meanwhile, analyses of the most common form of special-purpose government—public schools—find that competition limits government spending. While these inconsistencies suggest that competition is not systematically related to government size, they also support Brown and Saving's (1999) theoretical conclusion that government size may be a poor indicator of suboptimal government behavior.

COMPETITION AND GOVERNMENT SERVICES

While the previously discussed literature explores competition's effects on government budgets, a complementary literature explores its effects on the services financed by those budgets. However, both the quantity and quality of government services can be hard to measure, particularly when governments are trying to accomplish multiple objectives. Therefore, the literature on government services is limited almost exclusively to studies of the one government function for which there is substantial data on outcomes—primary and secondary education. The literature strongly suggests that competition enhances public school quality.

A number of researchers have examined the effects on student performance of competition among school districts. In all cases, the researchers measure competition with a Herfindahl index of enrollments.³ Zanzig (1997) finds evidence that increased competition among public school districts enhanced student test scores in California; Borland and Howsen (1992, 1993, 1996) report similar results for Kentucky.⁴ Hoxby's (1994b) analysis of the National Longitudinal Survey of Youth suggests that students who attended high school in communities with more competition among public schools subsequently earned higher wages, scored higher on standardized tests, and completed more years of schooling.

Dee (1998) and Hoxby (1994a) examine the effects of competition from private schools. Both measure private school competition as the private share of educational enrollment in the county and use instrumental variables techniques to reflect the possible endogeneity of private school enrollment. Both also use the county's religious composition as the primary instrument for private school enrollment. Dee examines the effects of competition on average graduation rates, while Hoxby examines competition's effects on educational attainment, graduation rates, test scores, and student wages. In

all cases, the researchers find that student outcomes are better in areas with more competition from the private sector.

COMPETITION AND GOVERNMENT PRODUCTIVITY

The public sector's productivity has received enormous attention in the economics literature, but only a few researchers have formally related the degree of public-sector efficiency to the intensity of the competitive environment. In general, this modest literature finds that local governments facing intense competitive pressure use their resources more efficiently than local governments facing less competition.

Grossman, Mavros, and Wassmer (1999) examine the relationship between competition and efficiency for the central cities of 49 U.S. metropolitan statistical areas (MSAs). Arguing that an efficient city government will maximize property values, they use frontier estimation techniques and panel data to measure the extent to which aggregate city property values are less than maximal. Their estimation technique allows the deviations from the property-value frontier to be a function of several factors, including the degree of horizontal government competition. They measure competition as the number of cities in the MSA, the average population of those cities, and the number of U.S. cities in the central city's census population group. They find that central cities move closer to the property-value frontier (that is, become more technically efficient) as the number and average population of competing suburban cities increase.

Hayes, Razzolini, and Ross (1998) employ a two-step procedure to examine the behavior of Illinois municipalities. In the first step, they estimate efficiency measures for municipalities, using proxies for police and fire services as the outputs. In the second step, they regress the efficiency measures on a set of municipal characteristics, including whether the jurisdiction is a Chicago suburb and whether it is urban, which they interpret as indicators of the degree of competitive pressure facing local bureaucrats. They find that Chicago suburbs are less wasteful than other governments in Illinois, a factor they attribute to enhanced competition for residents.

The remaining literature examines competition's effects on the productivity of the U.S. public school system. The evidence suggests that increased competition—regardless of the source—enhances the productivity of public schools. Husted and Kenny (1996) estimate effi-

ciency frontiers for the educational system in each state and find that the school system is much less efficient in those states below a threshold number of school districts per capita. Grosskopf et al. (1999, 2000) estimate efficiency frontiers for urban Texas school districts and find evidence that school-district inefficiency is substantially higher in metropolitan areas with less competition for enrollment (both public and private). Barrow and Rouse (2000) use different empirics but the same theoretical model as Grossman, Mavros, and Wassmer (1999) to examine the effect of school-district spending on property values. They conclude that school districts spend less efficiently in areas with less competition from other public schools.

In terms of external competition, Duncombe, Miner, and Ruggiero (1997) find that the cost efficiency of New York school districts is lower where private school enrollment is higher. However, because they do not treat private school enrollment as endogenous, their analysis may suffer from reverse causation whereby inefficient public schools induce flight to the private sector. After controlling for the possible endogeneity of private school enrollment, Dee (1998) and Couch, Shughart, and Williams (1993) find that increased competition from private schools improves public school outcomes, holding expenditures constant.⁵

IMPLICATIONS AND CONCLUSIONS

As the survey above illustrates, a substantial literature examines the premise that governments facing intense competitive pressure from other service providers behave differently than do governments facing little or no competition. However, the literature suffers from two significant weaknesses that make it difficult to draw firm conclusions from the collected research.

First, the literature lacks a consistent definition of the market for government services. Some researchers use national, state, or county boundaries to define the market.⁶ In these studies, governments are assumed to compete with all other governments inside the designated boundary but not with those outside the lines. Such an approach is problematic for a number of reasons. For example, while it may be plausible that competition across national borders was negligible in the past, today's world of mobile capital and labor makes such an assumption less defensible. The assumption that governments do not compete across state or county lines is implausible on its face. Furthermore, while it is reasonable to believe that all

governments within a small geographic unit like a county compete with equal intensity with one another, it is hard to argue that all governments within a large state or nation compete with one another in the short term. In most cases, a suburb of Dallas competes intensely with another Dallas suburb but only negligibly with a suburb of El Paso. Therefore, while all the governments may compete with one another in a geographically compact state like Connecticut, such a market definition is unlikely to fit properly for large states like Texas and California. Market concentration estimates based on geographic notions that fit some regions but not others will introduce systematic measurement error that makes the whole analysis suspect.

Other researchers view only contiguous jurisdictions as relevant competitors (see, for example, Schneider 1989). Such studies probably define the market too narrowly and are particularly susceptible to spatial omitted variables masquerading as competition. For example, all governments near a prison may spend more on police than other governments.

Most consistent with models of competition through factor migration are studies that use labor markets to define markets for government services (for examples, see Grosskopf et al. 1999, 2000; Eberts and Gronberg 1990; Hoxby 1994b; or Grossman, Mavros, and Wassmer 1999). Unfortunately, such studies tend to focus exclusively on horizontal competition with no regard for vertical competition among governments. While vertical competition may be negligible in certain markets (such as education services), it is potentially important in other markets (such as public safety).

Another dimension of the market definition dilemma is the question of competition from the private sector. Although governments compete with the private sector to provide hospital care, health insurance, utilities, business financing, roads, security and detective services, and a myriad of other services, school districts are the only governments for which the literature examines external competition.⁷ The lack of evidence on the effects of external competition for noneducational services would be less troubling if the literature did not demonstrate so clearly that private-sector competition has a substantial influence on the one government that has been studied—public schools.

The lack of consensus on market definition foreshadows the second weakness in the literature—idiosyncratic measures of competition. The most common measure is the number of governments deflated by some measure of

population (for examples, see Oates 1985; Grossman 1989; Nelson 1986, 1987; Bell 1988; or Grossman, Mavros, and Wassmer 1999), but numerous studies use direct measures of market concentration like Herfindahl indexes or concentration ratios (Eberts and Gronberg 1990; Borland and Howsen 1992, 1993, 1996; Hoxby 1994a, b; or Grosskopf et al. 1999, 2000). Studies of competition in education base their estimates of the Herfindahl index or concentration ratio on enrollment shares, but expenditure shares are the name of the game outside of education (for example, Eberts and Gronberg 1990). Schneider (1989) measures competitive intensity using the number of contiguous jurisdictions and the standard deviations of expenditures and taxes for all cities in the metropolitan area. He argues that if all the jurisdictions offer the same bundle of taxes and services, there is no effective competition. Grossman, Mavros, and Wassmer (1999) use measures of jurisdictional size to capture the opposite idea—if city governments are too dissimilar, they do not compete. Borland and Howsen (1992, 1993, 1996) and Grosskopf et al. (1999, 2000) treat competition from public and private schools symmetrically using a Herfindahl index, but all other studies of the impact of private-sector competition use the private enrollment share as the measure of competition.

Regardless of their metric for competitive pressure, virtually all the studies treat market structure as exogenous. The few exceptions come from the education literature and primarily arise from the obvious interplay between private school enrollment and public school quality (see Couch, Shughart, and Williams 1993; Dee 1998; and Hoxby 1994b). Hoxby (1994b) is the only researcher to model competition within the public sector as endogenous. She argues that jurisdictional boundaries were set historically following the topography of the land and that, therefore, topography can provide the exogenous variation needed for instrumental variables analysis. For each MSA, she records the number of “rivers, streams, creeks, inlets and similar bodies of water whose width exceeds 75 feet at some point and that extend at least five miles. They are classified as either inter-county ‘rivers’ (where they form county boundaries) or intra-county ‘rivers’ (where a stretch of water flows inside a county’s boundaries).” She then uses the number of inter-county rivers and the number of intra-county rivers, together with area demographics, to generate an instrumental variable for the Herfindahl index. She provides strong evidence that it can

be statistically inappropriate to treat market concentration as exogenous. As a general rule, Hoxby finds that when compared with ordinary least squares (OLS) analysis, an instrumental variables approach yields substantially larger estimates of market concentration's effects on school-district size or student outcomes. However, in none of the cases she reports for comparison would a naive, OLS analysis have led a researcher to a conclusion other than Hoxby's about the direction and significance of the effects of competition.

An equally important problem of endogeneity arises from the possibility that there is a critical level of competition such that governments in markets on one side of the critical level would benefit from increased competition while those on the other side would not. All researchers who report looking for such a switching point have found one (see Grosskopf et al. 1999, 2000; Borland and Howsen 1993; and Zanzig 1997). For example, Grosskopf et al. (1999) estimate that school districts in metropolitan areas with a Herfindahl index above 0.27 (equivalent to a market with just over four equally large firms) are more than twice as allocatively inefficient as school districts in less concentrated markets. Unfortunately, as with the question of the general endogeneity of market concentration, this hypothesis has been explored only in the context of public education. Therefore, it is not clear whether the issue generalizes to other types of government.

An ill-defined market, together with inconsistent and potentially inappropriate measuring sticks, raises the strong possibility that competition has been mismeasured in much of the literature on competition and government. Furthermore, there has been little empirical analysis of the contestability of the government market, of the extent to which the electoral process provides a substitute for competition from other government service providers (see the box entitled "Political Competition"), or of the extent to which variations in the regulatory environment selectively limit government responses to competitive pressure. Finally, for various reasons, the literature on government and competition has become overly concentrated in a single governmental function—education. Clearly, much work remains to be done on this issue.

Most of the work on government responses to competition has focused on the market for education, and here the literature is strikingly consistent—competition improves public schools. Almost across the board, re-

While competition among government service providers has received most of the attention in the empirical economics literature, a modest, parallel literature explores the effects of competition for the political control of governments. In the political competition literature, citizens are usually treated as immobile, making the market for political control very different from the market for government services. Oversimplifying slightly, one can say that the political competition literature deals with voting, while the rest of the government competition literature deals with voting with your feet.

The political competition literature has two main strands—voter monitoring and political concentration. Researchers have posited that governments that are difficult for voters to monitor or that are controlled by powerful political parties behave differently than do governments facing more political competition. The empirical literature generally supports this perspective.

Although voter monitoring is not directly observable, rough proxies for increased monitoring are associated with smaller and more efficient governments. For example, Oates (1985) argues that centralized governments are more difficult for citizens to monitor, and, consistent with this perspective, researchers typically find that the public sector is bigger where the federal government is a larger share of total government. For examples, see Marlow (1988), Joulfaian and Marlow (1991), and Grossman and West (1994). For a counterexample, see Grossman's (1992) analysis of Australia. Other proxies for monitoring activity include tax rates, population densities, home ownership rates, and the educational attainment of citizens. Such proxies partially explain variations in the efficiencies of police departments (Davis and Hayes 1993; Hayes and Wood 1995; and Hayes, Razzolini, and Ross 1998) and public schools (Grosskopf et al. 2000 and Duncombe, Miner, and Ruggiero 1997).

Concentrated political power is usually associated with monopolistic behavior, although there is some debate as to whether monopolistic governments are necessarily nonoptimal (see Brown and Saving 1999). For example, Anderson and Tollison (1988) and Rogers and Rogers (1995) find evidence that governments are smaller in states where power is concentrated in one political party. Baber and Sen (1986) find that states with concentrated political power tend to have less of an increase in debt-financed spending immediately prior to an election. Lipford and Yandle (1990) find that state governments make up a larger share of the public sector if a single party controls a larger share of the state government, a pattern they attribute to cartelizing by state legislatures.

Although voting can substitute for voting with your feet, few empirical studies of competition among government service providers explicitly control for variations in political competition. Those studies that incorporate political competition do so through measures of monitoring rather than political concentration (see Grossman, Mavros, and Wassmer 1999; Grosskopf et al. 2000; Hayes, Razzolini, and Ross 1998; and Duncombe, Miner, and Ruggiero 1997). The studies tend to find that both types of competition enhance government efficiency.

searchers have found that school spending is lower, academic outcomes are better, and school-district efficiency is higher where parents have more choice in their children's educational provider. Furthermore, competitive benefits emerge regardless of whether the competitor is a private school or another public school. Thus, the literature offers support for the notion that increased school competition—fostered either by vouchers or charter schools—would improve the public school system. Additional research will be necessary, however, before this conclusion can be extended to the remainder of the public sector.

NOTES

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- ¹ A parallel literature explores political competition (see box on page 7). Other literatures explore government competition less directly. For example, a substantial literature uses housing values to examine whether governments are efficient (see Oates 1969, Hoyt 1990, Taylor 1995, and Brueckner 1982), while another literature explores the interdependence of government decisionmaking (see Figlio, Kolpin, and Reid 1999; Case, Rosen, and Hines 1993; Staley and Blair 1995; and Blair and Staley 1995).
- ² Schneider (1989) and Joulfaian and Marlow (1991) use government employment per capita to measure government size. Schneider also examines the relationship between competition and public-sector wages. His wage analyses are inconclusive.
- ³ In this context, the Herfindahl index is the sum of squared enrollment shares.
- ⁴ Borland and Howsen include competition from private schools in their Herfindahl index. As such, the index measures the effects of competition without regard to whether the competition is horizontal or external.
- ⁵ However, Newmark (1995) examines the robustness of the results in Couch, Shughart, and Williams (1993) and concludes that their analysis is fragile. See Couch and Shughart (1995) for their response.
- ⁶ See, for example, Oates 1985; Nelson 1986, 1987; Zax 1989; Heil 1991; Kenny and Schmidt 1994; Di Matteo 1995; Bell 1988; Borland and Howsen 1992, 1993, 1996; Zanzig 1997; or Grossman 1989.
- ⁷ A substantial literature compares the relative efficiency of public and private service providers but does not answer the question, Would fostering private competition improve public service quality, cost, or efficiency?

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