Fragmentation, Fiscal Mobility, and Efficiency

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This article examines whether greater fragmentation in local government improves efficiency. Tiebout (1956) "exiting" is the general theoretical underpinning for the belief that fragmentation should improve efficiency. The article argues that previous evidence for the greater efficiency of fragmented government is weak because the complex nature of many local government systems is not consistent with the institutional structures supposed in the models and does not allow for simple testing. Using evidence from England where institutional structures more closely resemble those in the Tiebout model, efficiency is analyzed both at the jurisdictional and metropolitan level in a straightforward manner. No evidence for the supposed positive effects of fragmentation is found. Voice mechanisms may explain why fiscal mobility does not lead to efficiency in the fragmented system of metropolitan England.

Fragmentation and Competition: Two Theories

Theoretical battles over the efficiency of consolidated versus fragmented forms of government dominate the political economy of metropolitan government. Two technical issues complicate the debate: the first covers the definition and measurement of efficiency, the second the definition and measurement of fragmentation.

Efficiency is usually broken down into two components. Technical (or productive) efficiency concerns the relationship between inputs and outputs. Production is more technically efficient the higher the output relative to the input. Allocative efficiency concerns the relationship between supply and demand. Roughly, the more people who receive the type and level of service they want the more efficient the allocation. Tests of the efficiency of consolidated versus fragmented government tend to look at only one aspect of efficiency. Either they look at technical efficiency or they look at allocative efficiency. Even then the measures of technical and allocative efficiency vary. All too often technical efficiency is measured by simply looking at costs without considering variation in the output. Fragmented (or consolidated) government spending less on a given service only measures greater efficiency if the same level of service is provided. Spending cuts do not necessarily result in efficiency gains. Allocative efficiency

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is usually measured by examining satisfaction as revealed through citizen surveys. Such interpretation of stated preferences however often lacks theoretical justification. In this article we rely on stated preferences but we offer a theoretical interpretation that clarifies the relationship between technical and allocative efficiency.[1]

Fragmentation is also difficult to define and measure. It might seem that government fragmentation should be straightforward. Controlling for the size of a metropolitan area, the more governments there are, the more fragmented the government structure. All one needs is a measure of the number of governments relative to the size of the metro area. However, the institutional structure of those governments is also important. In the US most local government is "polycentric." Polycentricity is not simply fragmented government but a mélange of both single-purpose and multi-purpose authorities with formally independent but often overlapping powers. This "irrationalist" form of local government has received strong theoretical support from the Bloomington School of public choice analysis (Bish 1971; Bish and Ostrom 1973; McGinnis 1999; Oakerson 1999; Ostrom, Bish, and Ostrom 1988). Where polycentricity exists, measuring the effects of fragmentation is complicated by the nature of the overlapping powers, jurisdictions, and institutional forms. In Europe the nature of fragmentation is more rationalistic in keeping with its stronger statist traditions. Here governments are tiered and have clearer multipurpose responsibilities with fewer overlapping responsibilities and no overlap in jurisdictions. The public choice theory justifying the rationalistic form is fiscal federalism (Allsop, Davies, and Vines 1995; Blackorby and Brett 2000; Bureau and Champsaur 1992; Oates 1972, 1998). Fiscal federalism suggests a strong separation of competencies so that each tier is responsible for both providing and collecting taxes for a given set of services. This reduces the "flypaper effect" where money sticks where it hits and intergovernmental grants tend to increase output rather than decrease local input (Hamilton 1986; Oates 1979; Schneider 1989, Chapter 6). These different institutional forms make comparison between the US and other nations more problematic, and in the polycentric case, simple tests for the efficiency of fragmentation are more problematic.

One of the theoretical arguments for efficiency gains through fragmentation is Tiebout's (1956) informal model. Tiebout suggests households may choose where to live in a metropolitan area with multiple competing governments partly due to the tax-service packages on offer. If local authorities offer different levels of service provision, locational decisions will enhance allocative efficiency as households choose the service provision more closely fitting their preferences. Competition over tax rates may also lead to technical efficiency gains. Theorists from both the polycentric and the fiscal federalist camp press Tiebout arguments for fragmentation.

[1] We use the term "efficiency" when the context applies to both allocative and technical efficiency, otherwise we say "allocative efficiency" or "technical efficiency."

Another development also makes tests for fragmentation versus consolidation more problematic. Across the developed world new public management (NPM) practices have been increasingly adopted in local governments. The old "city size" debate was concerned with four issues: (a) democracy and accountability, (b) allocative efficiency, (c) technical efficiency, and (d) equity. Those preferring large-scale government tended to press (b)–(d), those preferring small-scale pressing (a) to (c). Obviously the arguments around (b) and (c) concern the way allocative efficiency is attained. (See Friesma 1966 and Zimmerman 1970 for the consolidationist case and Bish 1971 for an early defense of the fragmentationist case.) But these efficiency issues have been overtaken by NPM where privatization, contracting-out, franchising, "agencification", the introduction of "quasi-markets" and "internal markets," and the idea of the "entrepreneurial spirit" allowing for public managers the initiatives to go outside of Weberian rule-following practices all have major effects upon the efficient provision of services (Kolderie 1983; Osborne and Gaebler 1993; Pollitt, Birchall, and Putnam 1998; Schneider 1989). Sets of small-scale local governments may contract-out a given service to the same major company for large-scale technical efficiency gains. Conversely, a consolidated government can contract-out services to a set of small competing companies for technical efficiency gains through competition. The degree to which these NPM practices are followed must be controlled for when testing the fragmentationalist case especially where there is great variation across multipurpose governments. No empirical tests in the US, where these practices vary massively across local authorities, provide such controls.[2] It is for this reason, perhaps, that the polycentrists place less emphasis on Tiebout competition in order to argue for the efficiency for fragmented government. In the UK there is little variation in contracting-out since national law specifies which services must be open to competitive tender and few local councils go beyond that required by law.

Empirical Evidence

Studies attempting to test the Leviathan hypothesis—that more consolidated governments spend more (as a proxy for technical inefficiency)—have not distinguished budget maximizing from competition and tend to offer no support for the hypothesis (Forbes and Zampelli 1989; Oates 1985; Zax 1989). Nelson (1987) finds strong and significant evidence of the fragmentation case for multipurpose units but no evidence that for single function units there is any effect on the size of the public sector. Indeed studies suggest that multiplying the number of single-purpose units increases the size of the public sector (Chicoine and Walzer 1985; Zax 1989). A plausible explanation for these findings is that services offered by single-purpose units tend to be capital-intensive and hence greater fragmentation

[2] The degree to which such practices exist has been tested (Ferris 1986; Ferris and Grady 1986; Martin and Stein 1987). Theory and some evidence suggests that the largest and smallest municipalities contract-out more services than mid-size ones (Oakerson 1999, Chapter 2). But a test across municipal size controlling for contracting-out has not been conducted.

may be associated with a loss of economies of scale. Zax (1989) finds evidence for both these hypotheses. Whilst costs seem to be lower with fragmentation in the case of multipurpose authorities, Leviathan behavior is not the only explanation. There is less likely to be redistribution as Tiebout sorting may create relatively income-homogenous communities, whilst fear of attracting the mobile poor may lead to less generous welfare programs (Musgrave 1997). However, there is also little evidence of Tiebout sorting (Dowding, John, and Biggs 1994). In a recent study of all US counties from 1850 to 1990, there is no decreasing heterogeneity between counties in policy outcomes, and this is replicated in a case study of the Boston SMSA at the municipal and county level (Rhode and Strumpf 2000).

The main difficulty with these studies is that they do not measure technical efficiency but expenditure (Boyne 1992). Greater technical efficiency should lead to lower spending, greater demand to higher spending; but neither has been demonstrated. Furthermore, consolidated governments may attempt redistribution impossible for smaller jurisdictions. Redistribution at the local level may or may not be normatively justified, but does not bear upon Tiebout's model. His model provides a solution to the problems of demand revelation for collective goods rather than a claim about the type of goods local governments should produce.

Once these definitional problems are accounted for, several conclusions may be drawn about local government structures. First, the fragmentation of multipurpose governments generally leads to reduced expenditure. Second, local government jurisdictions engage in tax/service competition within the spatially constrained market of a metropolitan area. Third, concentration of market share in large top-tier units is associated with higher spending. Finally, the findings are consistent with alternative hypotheses. Though budget-maximizing behavior may occur and indeed explain the relationship between centralization and higher costs, these studies do not offer solid evidence that Leviathan exists or that competition between jurisdictions produces greater efficiency. Zax (1989) concludes that the proportion of aggregate personal income paid in local taxes is smallest with low levels of centralism, low fragmentation of single-purpose units, and high fragmentation of multipurpose units. However, whether such local-government configuration is optimal is questionable. It is worth recalling the polycentrists' conclusion that optimal size may vary depending on the nature of the collective good. Moreover, if consolidated systems can also realize efficiency gains from contracting-out, there seems no generalizable deduction that either consolidation or fragmentation is best.

The relationship between fragmentation and efficiency is thus not established. The efficiency arguments of the polycentrists largely concern allocative efficiency measured by satisfaction of local citizens seen in surveys. In a series of papers and books, Elinor Ostrom and others have carried out microlevel studies of demand through questionnaire appraisal of local police services in consolidated and fragmented communities (see the essays in McGinnis 1999 and citations

therein). Almost without exception they argue that satisfaction is greater in smaller than larger jurisdictions. However, their studies may demonstrate only that the personal relationship between public and police is better in smaller jurisdictions. Bish and Ostrom (1973) report that objective statistics on police clear-up rates in smaller jurisdictions compare favorably with those of large metropolitan forces. However, as the polycentists widely acknowledge the characteristics of collective goods vary and one cannot generalize from one good to another. Thus for multiple-purpose authorities there is little one may claim for optimal size given the varying nature of different types of goods. Again NPM practices may have over-run the "city size" debate.

Many have questioned whether the UK, or specifically metropolitan England, provides good grounds for the working of the Tiebout model (Newton 1997; Sharpe and Newton 1984). Metropolitan areas have multiple jurisdictions but outside of London with its thirty-two boroughs (plus the Corporation of London), there are not that many. However, there is aggregate-data evidence of fiscal mobility and surveys have shown that households claim to take into account fiscal factors and that fiscally sensitive movers relocate Tiebout-rationally (Dowding and John 1996; John, Dowding, and Biggs 1995). In the three metropolitan areas from which the data in this study are drawn, there is evidence of fiscal mobility.

Fiscal Mobility in England

Without fiscal mobility there is no market for local public services and therefore no basis for testing the effects of fragmentation. To investigate the extent of fiscal mobility we use data from a 1997 survey of the three largest metropolitan areas in England: Greater London, the West Midlands, and Greater Manchester. The Citizens Choice and Population Movement (CCPM) survey was purpose-built to investigate fiscal factors in residential mobility, and for this reason movers were oversampled. The sample size of approximately 1,500 households represented a response rate of 58%, achieved by face-to-face interviews.

We analyze respondents' intentions to exit their jurisdiction within two to three years after the interview. We mapped these intentions to a dichotomous variable, indicating whether there was any intention to exit the jurisdiction or not.[3] Our

[3] The definition of the dependent variable in the probit was based on the following two questions from the CCPM survey:

Q25. Which of the following best describes what you think you will do in the next two or three years?

(1) Definitely stay in this home. (2) Probably stay in this home. (3) Probably move from this home. (4) Definitely move from this home. (5) Don't know.

Those who answered (3) or (4) were asked Q26:

Q26. Would such a move involve moving out of this local authority area?

(1) Definitely yes. (2) Maybe yes. (3) No. (4) Don't know.

Those who responded Q25 = 1, or Q25 = 2, or (Q25 = 3 or Q25 = 4) and (Q26 = 3 or Q26 = 4) were classified as not intending to exit. Those who responded (Q25 = 3 or Q25 = 4) and (Q26 = 1 or Q26 = 2) were classified as intending to exit.

main concern was to relate intentions to exit to the fiscal environment. Traditionally it has been extremely difficult to usefully summarize the fiscal environment and relate it to either intended or realized mobility (Mergoupis and Dowding 2001). In our model the fiscal environment is captured by two sets of variables. One consists of the respondents' opinions on the quality of council services. Households were asked what they liked about their neighborhood and then were asked what they did not like. Council services were one of the characteristics from which they were asked to pick.[4] We derived two dichotomous variables from the answers, one indicating whether good council services were picked and another for bad ones. The level of taxation, represented by the council tax rate for Band D (the fourth of eight tax brackets) for a two-person household, captures the cost of providing those services. Another long-standing difficulty in estimating the effects of the fiscal environment on mobility decisions is the correlation of fiscal variables with other jurisdiction-level variables reflecting an area's desirability. We control for these factors by using the Index of Local Deprivation (ILD), a sum of 12 indicators. These indicators cover numerous environmental factors and living conditions in a council district and are used by the UK central government for the allocation of central funding (ODPM 1998). In addition to the jurisdiction-level variables, we control for household demographic and economic characteristics, mobility history, and for metro-area fixed effects. All models were estimated with probit, and the results are presented in Table 1.

Model 1 includes the fiscal- and jurisdiction-level variables, metro-area fixed effects, and mobility history. All the fiscal variables are statistically significant except for the tax level which was not statistically significant at any conventional level in any of the models we ran. This implies that the level of taxation does not enter into the average English urban household's intentions to move ("push" factor). Whether this is due to fiscal illusion or to council taxes being too low cannot be answered with these models. Of course the level of taxation may still affect mobility. Taxation may enter into the decision as a "pull" factor (where to move *to*). Furthermore, local taxes affect mobility decisions indirectly through house-price capitalization. But the average household does not consider tax levels to be an important factor when they decide whether or not to move in the first place. Not so for council services. Good council services have a consistently negative and statistically significant effect on exit intentions, and bad council services have a consistently positive and statistically significant effect. The implication is clear: average English urban households are less likely to plan to

[4] Those who picked local public services among the aspects that they liked or disliked about their neighborhood were then asked which services in particular they like or disliked. They were asked to choose among the following list: libraries, health services, education, refuse collection, leisure services (including parks, sports facilities, and swimming pools), street cleaning, social services, police, all services, or some other service. The top five most-liked services were: refuse collection (65%), libraries (52%), street cleaning (51%), health services (43%), and leisure services (36%). The top five most *dis*liked services were: street cleaning (47%), health services, refuse collection, leisure services (22%), and education (17%).

TABLE 1

Probits on Intention to Exit a Jurisdiction

	Model 1	Model 2	Model 3
Good council services	−.38**	−.30**	−.47*
	(.14)	(.15)	(.28)
Bad council services	.24*	.25*	.56**
	(.13)	(.14)	(.19)
Tax level (in hundreds of British pounds per year for Band D)	−.026	.03	−.016
	(.058)	(.06)	(.061)
Index of local deprivation	.015**	.013**	.013**
	(.004)	(.004)	(.005)
(Good council services) × (education greater than high school)			.23
			(.33)
(Bad council services) × (education greater than high school)			−.57**
			(.27)
Greater London	.28**	.19	.21*
	(.12)	(.12)	(.12)
Greater Manchester	−.15	−.20	−.20
	(.12)	(.13)	(.13)
No mortgage		.35**	.36**
		(.11)	(.11)
Age		−.020**	−.020**
		(.004)	(.004)
Nonwhite		.02	.02
		(.12)	(.12)
Education greater than high school		.38**	.44**
		(.10)	(.12)
Earnings per equivalent person (in logarithm)		.027*	.025
		(.016)	(.016)
Intrajurisdictional mover	−.29**	−.23*	−.23*
	(.12)	(.13)	(.13)
Nonmover	−.43**	−.05	−.06
	(.11)	(.13)	(.13)
Intercept	−.99**	−1.15**	−.87*
		(.43)	(.49)
Mean log likelihood	−.3785	−.3531	−.3510

N = 1,313 in model 1, N = 1,287 in models 2 and 3.

Note: * indicates significant at 10%, ** indicates significant at 5%. Standard errors in parentheses.

exit when they like the council services and more likely if they do not. In Model 2 we add the demographic and economic control variables. The metro-area fixed effects and the effects of mobility history lose their statistical significance, but the results on the effects of the fiscal environment and the ILD remain robust.

We also explore how the views on local government services affect exit intentions at different levels of other control variables using interaction terms. The interaction between negative views and income is thought to be of particular the-

oretical importance because it is claimed that high-income households are more mobile and vocal in local politics, hence driving the efficient provision of local public services (Teske et al. 1993). We test this hypothesis by interacting views on local services and income finding none of the interaction terms with income is statistically significant.[5] By contrast, the interaction of negative views and education beyond high school is negative and statistically significant. The results of Model 3 in Table 1 imply that, compared to those who express neither negative nor positive views on local public services, the probability of intending to exit (a) for those who express positive views is lower by 5%, (b) for those who express negative views and are educated up to the high school level is higher by 12%, while (c) for those who express negative views and are educated beyond the high school level there is no difference. If education beyond high school (controlling for income) captures civic skills, then those with lower civic skills plan to exit when dissatisfied with local public services, while dissatisfaction has no effect on the exit plans of those with higher civic skills. We can only speculate as to whether the more educated actually do voice their dissatisfaction and to what effect. The calculus of exit and voice that emerges from these results however, is much more complex than what we are led to expect from studies that analyze movers only or do not control for the range of factors that we do here.[6]

Fiscal conditions affect actual moves as well as intentions to move. Intrajurisdictional moves are likely to be, on average, shorter moves than interjurisdictional intrametro moves, which in turn are likely to be, on average, shorter than moves from outside the metro area. Distance affects the reasons for moving. Long-distance moves are related to job factors, while short-distance moves are related to changes in housing demand (Clark and Van Lierop, 1986). Based on the CCPM survey, Table 2 presents a list of factors households gave as "push" factors by distance-component of residential mobility. Table 3 presents a list of factors households gave as "pull" factors by distance-component. The frequency of push factors conforms very well to the relationships between distance and reasons for moving identified by others (Clark and Van Lierop 1986). Employment change is dominant for long-distance moves, with 45% of those moving from outside the metro area, but only 10% and 5% of the interjurisdictional intrametro and intrajurisdictional movers, respectively. Changes in housing demand, on the other hand, dominate shorter distance moves, with 44% of the intradistrict movers, and only 24% and 5% of the interdistrict intrametro and outside metro movers, respectively.

[5] Income here is measured as the natural logarithm of earnings per equivalent person. The CCPM gives information on four types of income: earnings, property, other, and benefit income. We experimented with all these types of income in a variety of combinations, and earnings are the best predictor. Using equivalent scales is an efficient way of controlling for the needs of the household. Here we followed standard practice and used the OECD equivalence scales which give a weight of 1 for the first adult, .5 for each other adult, and .3 for each child (Hagenaars, de Vos, and Zaidi 1994).

[6] For a discussion of the complex modeling problems in examining the relationship between exit and voice see Dowding et al. (2000).

TABLE 2

Mobility Push Factors by Distance of Move

Stated reasons for moving	Percentages of households that have moved in the preceding seven years, by distance of move		
	Within districts (short distance)	Between districts (intermediate distance)	From outside the metro area (long distance)
Fiscal factors			
Poor council services	1.5	9.5	.1
High council tax	.5	—	—
Nonfiscal factors			
Employment change	4.5	10	45
To be closer to friends/ relatives	6	6.5	25
Change in family status	28	28	21.5
To own from renting	13	20	4
Concern about crime	4	18	1
Difficult commute	2.5	19	5
Concern about pollution/ noise levels	5	9.5	.8
House too small/big	43.5	24	4.5
Conflict with neighbours	5	2	.5
Racism	.5	1	—
No choice/had to move/ contract expired	15	4.5	1.5
Other	17.5	19	31

Note: Multiple reasons possible.
Source: CCPM survey.

Fiscal push factors are measured by two reasons of moving *from* a house, namely poor council services and high council tax. Fiscal pull factors are measured by four reasons for choosing a residence, namely good council services, low council tax, good public transport, and proximity to a good school. A distinct pattern emerges from the frequency of these reasons. Public services covering more than one jurisdiction are more important for long distance, out-of-metro-area moves. Services covering a single jurisdiction are more important for interjurisdictional moves, and services that cover areas smaller than a jurisdiction are more important in intrajurisdictional moves. There is a direct relationship therefore between the size of the area over which a public service is provided and the distance of the moves it generates. For example, public transport, a service usually spanning more than one jurisdiction, is a pull factor for 30% of out-of-metro movers, but for only 26% of interjurisdictional intrametro, and 9% of intrajurisdictional movers. Poor council services appear as a push factor for 10% of interjurisdictional intrametro moves, but for only 1.3 and .1% of intrajurisdictional and out-of-metro movers, respectively. State schools have catchment

TABLE 3

Mobility Pull Factors by Distance of Move

States reasons for moving	Percentages of households that have moved in the preceding seven years, by distance of move: Within districts (short distance)	Between districts (intermediate distance)	From outside the metro area (long distance)
Fiscal factors			
Good public transport	8.5	25.5	30
Good council services	2	4	1.5
Close to good school	22	12.5	7
Low council tax	.5	2.5	.2
Nonfiscal factors			
Good commute	21	41	42
Friends/relatives nearby	34	18	40
Low property prices/rents	17	23	18
House suited needs better than others that could be afforded	58	33	32
Good access to shops	27	27	13.5
Moved with partner	9	13	9.5
Low pollution/noise levels	20.5	18.5	6
Low crime rate	15.5	9.5	4.5
Private leisure facilities nearby	13	8	6
Other	19	12.5	11

Note: Multiple reasons possible.
Source: CCPM survey.

areas smaller than the local government jurisdiction, and proximity to a good school is a pull factor for 22% of intrajurisdictional moves, but for only 13 and 7% of interjurisdictional intrametro and out-of-metro moves, respectively.

In some respects this relationship is puzzling because moving costs within a metropolitan area should not vary with distance. It seems therefore that either information on public services is not uniformly distributed across a metropolitan area, or there is hierarchical adjustment whereby households move progressively closer to the location providing the fiscal bundle best suiting their needs. Exploring these implications requires long mobility histories, which are not part of the CCPM data.

Making Welfare Comparisons

As we have suggested, it is treacherous making welfare comparisons across metropolitan areas to identify the effects of local government structures. The main problem is choosing the appropriate welfare criterion. Technical efficiency is neither a necessary nor sufficient criterion. A community may be better off having

more of a public service produced wastefully, than less of it produced technically efficiently. Allocative efficiency is also problematic. Several allocations may be efficient, depending on the welfare criterion chosen. The Pareto criterion is excessively restrictive as it is extremely unlikely that local government reorganization will make everyone at least as well off. Complicating matters, any social welfare criterion has to account for the complex ways in which public services relate to private consumption.

Given these difficulties we opt for a simpler and more direct criterion. Our efficiency criterion relies upon the stated satisfaction from local public services entailing a simple test. For two metropolitan areas in all respects identical except for their local government structure, if citizens in one claim on average they are more satisfied from their local public services than those in the other, then we take this as evidence that the difference in local government structure improves welfare. Formally, we assume that stated preferences on local public services are a function of (a) the utility derived from these services, (b) the economic and demographic characteristics of the respondent, and (c) the political preferences of the respondent. We call this the Stated Preference Function (SPF), and it is given by: $R = f(u(\boldsymbol{g}), \boldsymbol{z}, \boldsymbol{q})$, where $u(\cdot)$ is the utility derived from the services, $\boldsymbol{g}$ is a vector of measures of service provision, $\boldsymbol{z}$ is a vector of economic and demographic characteristics, and $\boldsymbol{q}$ is a vector of variables capturing political preferences. Local public service provision is in turn assumed to be a function of metropolitan-level government structures and resources. That is, letting F measure fragmentation and $\boldsymbol{M}$ be a vector of metropolitan-level variables measuring resources, we have $\boldsymbol{g} = (F, \boldsymbol{M})$. The fragmentationist position boils down to claiming that $\partial u/\partial F > 0$, i.e., that fragmentation increases utility from local public services. This is so for two reasons. First, increased fragmentation is supposed to lead to a reallocation of resources to reflect better citizen needs and preferences. This increases utility by decreasing the provision of those services in $\mathbf{g}$ that have relatively lower marginal utility, while increasing those that have relatively higher marginal utility. Second, increased fragmentation is supposed to reduce waste through competitive pressures. This increases utility by across the board increases in $\mathbf{g}$ (holding expenditure constant). The first is an allocative efficiency argument while the second is a technical efficiency argument. Both arguments imply that as long as stated preferences are an increasing function of utility, they must also be an increasing function of fragmentation. That is, if $\partial R/\partial u > 0$, and the fragmentationist proposition holds, then we must have $\partial R/\partial F > 0$. This offers a direct test of the effects of fragmentation. We need to further assume that the utility derived from local public services by an individual j is given by: $u_j = u(\mathbf{g}) + \varepsilon_j$, where ε_j is independently and identically distributed across individuals and metropolitan areas. We can then regress the values of SPF on F, $\boldsymbol{M}$, $\boldsymbol{z}$, and $\boldsymbol{q}$, and test for the sign of F being positive.

The main problem with the use of SPF to analyze the welfare effect of fragmentation is the subjective nature of the responses. If local government structures affect the mean SPF values in ways other than through their effect on the

measures of local public services, this test may be invalid. One way local government structures may affect stated satisfaction is through the availability of choice. Fragmented local governments, by providing greater choice, allow more comparisons. Comparisons, in turn, have been shown to be crucial determinants of stated satisfaction (Clark and Oswald 1996). The idea is that where there are more comparisons, more people may state that they are dissatisfied. This may be true for those getting below-average levels of service provision in their metropolitan area, but those receiving above-average provision may see how better off they are with more comparisons. Greater choice leading to more comparisons is therefore likely to induce more statements of both dissatisfaction and satisfaction, leaving the average unchanged.

Estimating The Effects of Local Government Structure on Satisfaction from Local Public Services

To measure stated satisfaction from local public services we use a variable derived from a question in the CCPM survey asking: "In general, how satisfied or dissatisfied are you with your local council's provision of services?" Respondents could choose from six answers, five ranging from very satisfied to very dissatisfied, the sixth being "don't know." We ignored the latter to obtain a five-value categorical variable. We analyzed this variable using ordered probit.

We analyze satisfaction from local public services at two levels. The first is the metropolitan level where we examine the effects of fragmentation on satisfaction in the three metropolitan areas covered by the CCPM survey. The second is the local authority level. Controlling for the total metropolitan area, using the local authority area as an independent variable serves as an additional test of the effects of fragmentation. If smaller jurisdictions are associated with higher satisfaction levels in a metropolitan area of a given size then the fragmentationist position is supported. Furthermore, the local authority level of analysis addresses a fragmentation argument independent from the one relying on fiscal mobility. This argument suggests citizens will be better off in fragmented metropolitan structures not (merely) because they will move to the jurisdiction that best suits their preferences and budget, but because smaller governments are more responsive and can be controlled more easily.

At the metropolitan level we used two measures of fragmentation. The geographical density of governments measures the number of councils in a metropolitan area, controlling for its geographical area (Zax 1989). The four-jurisdiction concentration ratio measures the percentage of metropolitan area controlled by the four largest councils (Fischel 1981). Although the two measures do not give the same ranking for the three metropolitan areas we analyze, they are highly correlated. Other metropolitan-level factors apart from the governmental structure can influence the quantity and the quality of public service provision including the economic resources councils can draw upon and the economic and demographic composition of the population. We control for the latter

by including the demographic and economic characteristics of respondents. Controlling for the economic resources available to the councils is more difficult because our sample covers only three metropolitan areas, so we can use only one metropolitan area variable other than fragmentation. The two main resources metropolitan government draws upon are its tax base and transfers from central government. The measure of its tax base we included should be sufficient because it is precisely the measure used in the determination of transfers from central government. In addition, we also control for Tiebout effects using mobility history variables, as in our analysis of fiscal mobility.

For the local authority level of analysis we use a number of local authority-level variables, while controlling for metropolitan-wide effects. For the same reasons as at the metropolitan level we use the (council) tax base, the revenue support grant per head capturing intergovernmental transfers and, crucially, a taxation indicator. It is necessary to control for taxation here, but not at the metropolitan-level where taxation should be considered endogenous. For both levels of analysis we also control for individual-level demographic and economic characteristics and political preferences. We explore a wide variety of possibilities for capturing political preferences using information on voting intentions. The best performance was achieved when using a single dummy variable indicating the intention to vote either for the Labour or the Conservative parties in the local elections. The political platforms of the two parties have moved closer in the recent years but the fact that voters express very similar views on satisfaction from local public services should not be necessarily interpreted as identical political views. It may capture a tendency to approve the status quo absent among those who vote for other smaller parties.

The results of both levels of analysis are presented in Table 4. Both the four-council concentration ratio and the council density have the opposite signs of those predicted by the fragmentationist hypothesis, but are not statistically significant at the 10% level.[7] The local authority-level analysis gives statistically significant results and a more complex picture of the effects of local government structure. The results imply that the effects of fragmented local government are not linear: welfare increases as the size of a jurisdiction increases up to 193 square kilometers and decreases thereafter. There are two councils in our sample beyond this point: Wigan in Greater Manchester and Birmingham in the West Midlands. Rochdale in Greater Manchester, Solihull in the West Midlands, and Bromley in Greater London are the councils closest to, but just below 193 sq. km. Most of the population in metropolitan England would therefore be better off in *larger* councils. On the other hand, it is also clear that consolidating local government to the point of having a single metropolitan authority is not optimal. On these results, claiming fragmentation makes citizens better off has to be qualified. Fragmenting a large single metropolitan authority may be beneficial, but only

[7] We only present the results for the four-jurisdiction concentration ratio measure and not the geographical density of governments as the results are almost identical.

TABLE 4

Ordered Probit of Satisfaction with Local Public Services on Local Government Structure

	Metro level analysis	Council level analysis
Concentration ratio	.32	
	(.26)	
Tax base (1)	−.03	.17*
	(.09)	(.09)
Area of local authority (in sq. km) / 100		.793*
		(.412)
Area of local authority squared		−.205*
(in sq. km.)/10^4		(.121)
Metro area (in 1,000s of sq. km)		−.20
		(.15)
Revenue support grant per head		−.38
		(.34)
Tax for band D dwellings		−.674*
		(.392)
Vote Conservative or	.23**	.22**
Labour	(.07)	(.07)
Household earnings per equivalent	.17	.07
person (in logarithm)	(.99)	(1.08)
Female	.12*	.13**
	(.06)	(.06)
Age	.008**	.008**
	(.003)	(.003)
Nonwhite	−.18*	−.17*
	(.10)	(.10)
Renting privately	.22*	.25**
	(.12)	(.12)
More than high school	−.083	−.093
education	(.067)	(.067)
Nonmover	−.13*	−.13*
	(.07)	(.07)
Limit 1	.67**	.68**
	(.06)	(.06)
Limit 2	1.23**	1.24**
	(.07)	(.07)
Limit 3	2.95**	2.97**
	(.08)	(.08)
Intercept	1.19**	1.47**
	(.28)	(.51)
Mean log likelihood	−1.195	−1.190

Notes: (1) In thousands of Band D equivalent dwellings per square km.
N = 1,264.
(*) indicates significant at 10%. (**) indicates significance at 5%. Standard errors in parentheses.

when fragmentation is very limited, and certainly not as far as it has reached in England.

The results for the remaining variables are also interesting. Of the fiscal variables in the local authority-level analysis, the tax base has a positive effect on satisfaction, indicating that more economic resources to draw upon translates into greater welfare. Intergovernmental transfers, on the other hand, appear to have no effect, indicating that councils may substitute central government transfers for their own resources. The level of taxation is also significant, indicating that citizens are aware of the costs of public services. Tax levels may be on average irrelevant for exit expectations, but they matter in opinions of local government. Tiebout effects influence satisfaction from local public services. Movers are more satisfied than nonmovers, indicating the urban population is self-selected into jurisdictions. Finally, virtually all the demographic and economic variables are significant, showing that women, older people, whites, and private renters tend to express more satisfaction from local public services.

Conclusion

A great deal of theoretical and empirical work has investigated whether greater fragmentation in local government improves efficiency. Some evidence suggests it does; other evidence is more mixed (Dowding, John, and Biggs 1994). One of the major problems in assessing that evidence is that analysts have not distinguished between different institutional structures and the different means by which urban authorities provide services. Smaller single-purpose authorities often seem to provide greater satisfaction than larger ones, but evidence from one type of service does not necessarily apply to another or to multipurpose authorities. Furthermore, it is hard to gauge whether it is the size of the authority or their greater propensity to contract-out that leads to efficiency gains. The Tiebout model has often been "tested" with regard to evidence from local government systems that contain a mix of single- and multipurpose authorities; however, it was originally created (and later developed) with a multipurpose authority as the institutional structure.[8] This makes these tests subject to doubt. We have taken advantage of the institutional structure of metropolitan England that, despite its lower level of fragmentation per se than the US, is better suited for testing of the effects of fragmentation. Its simpler structure of nonoverlapping multipurpose authorities with identical responsibilities and little variation in degree of NPM practices allows for more controlled analysis. Our evidence shows that despite significant fiscal mobility, the three largest metropolitan areas would benefit from *reducing* government fragmentation, though not to the point of abolishing it altogether.

One obvious qualification of our results is that they depend on only three metropolitan areas. This is far smaller than the sample sizes used by studies that have

[8] However, Tiebout himself coauthored one of the original articles on polycentric forms of local government (Ostrom, Tiebout, and Warren 1961).

relied on *aggregate* data. It is however larger than the number of metropolitan areas analyzed by most of the studies in the literature that have used *household*-level data. In other words, whilst our data is not the best possible, it is the best available. Furthermore, we showed that the small number of metropolitan areas did not compromise the integrity of our metropolitan-level model. It allowed the use of one more crucial controlling variable (tax base), while the exclusion of intergovernmental transfers was shown to be not significant in the council-level analysis.

One theoretical consideration is that we do not explicitly model political outcomes, though the Stated Preference Function we use is over fiscal attributes, and political variables enter as its arguments. We stress however that it is the market model of metropolitan government itself that gives politics only a minor role. The market model relies on fiscal mobility, and it is with fiscal mobility that it was confronted. Our results suggest that the supposed benefits of the exit option are questionable. The point where the costs of exit outweigh its benefits may be much closer to a consolidated metropolitan government than previously thought. We also note that our models capture the *total* effect of exiting behavior, that is, the sum of its effects on both the economic and the political aspects of urban political economy. It still remains one of the most challenging tasks of political economy to disentangle these effects.

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