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What Drives Intra-county Migration: The Impact of Local Fiscal Factors on Tiebout Sorting

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Abstract: This study adds to the abundant and rich literature on the Tiebout-sorting hypothesis by investigating the motivation for intra-county migration within a state, the move from one municipality to another municipality within the same county. Using the data available from the Census on intra-county migration and demographic characteristics, as well as the Census of Government on local government expenditures, this study employs a difference model to test which local public services and products, in combination with taxes and demographic characteristics, encourage intra-county moves. Ultimately, this study presents a test to determine whether people at the local level are attracted to or repelled by higher spending and taxes. Results indicate that intra-county movers are attracted to local government units with both higher adjusted property taxes and higher government expenditures for certain local public goods and services. The results do not support the notion of the destructive force of competition among local government units resulting in the inability to levy local taxes to fund public goods and services.

Keywords: intra-county migration, government competition, fragmentation, consolidation

JEL Codes: H11, H31, H73, R11, R23

1. INTRODUCTION

The issue of government consolidation has been receiving ever-greater attention recently as governments seek new ways to pare costs. That is, some U.S. state governments (e.g., Pennsylvania and New Jersey) have been extolling the virtues of local government consolidation in an effort to give the consumer-voter some property tax relief. These same agencies further suggest that heavy local government fragmentation leads to the sub-optimal provision of some public goods and services through free riding and their inability to raise local taxes, with the resultant underinvestment in public infrastructure.

Thus, some state governments have been applying pressure on lower levels of government to reduce their spending and rates of taxation. These pronouncements are motivated by common complaints about higher taxes or the need for lower taxes. At the same time, however, people have tended to demand higher levels of certain public services or at least more involvement by government units in the regulation of their neighbors' behaviors. This ultimately poses the question of whether people are attracted or repelled by government units with higher spending and taxes, assuming higher spending can be equated with higher level and quality of service. The attraction and repulsion of people to government policies and finances is most easily measured by their relocation to new residences. Ultimately, then, understanding what attracts movers may enable government units to better tailor their bundles of public goods and services

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toward the needs of desired residents. Thus, the focus of this study is the migration of households from one minor civil division (MCD) to another MCD within the same county in Pennsylvania. Intra-county migration enables a focus on site characteristics of the very smallest government units, which vary considerably amongst counties within some U.S. states. Using MCDs also counteracts an obstacle to most empirical implementations of Tiebout-type models; a high degree of geographic aggregation (Farnham and Sevak, 2006).

Dealing with local governments enables a strict focus on local level differences, such as local taxes, expenditures, housing, schooling, and delivery of other public services, testing a Tiebout-like mechanism at work. It enables the researcher to dispense with region- and state-wide differences in labor markets, amenities, and fiscal well-being. Also, as one of the most fragmented states in the U.S., Pennsylvania poses a fertile testing ground for Tiebout-type hypotheses since for statistical purposes it provides moving households with a sufficient number of alternative choices for within-county locations.

Although empirical evidence is not perfectly clear on whether Tiebout-type effects exist at the local level (c.f., Dowding, John, and Biggs, 1994), I contend that they do. Relevant theory supports that higher local taxes rates can induce such effects as can higher rates of local public good provision, albeit in an opposing direction. In particular, the provision of public goods that are generally desired—e.g., education and public safety—can pull households to a jurisdiction, while other public goods—welfare services, school security, and public health—can induce a push effect on households since they not only force a rise in tax rates on local households but also possibly signal the presence of local activities that generate negative externalities and, as a result, force local governments to incur added costs in otherwise productive segments of their budgets.

In the second section, I review literature and theory pertinent to our analysis. Section 3 includes a discussion of the geographic scope of the paper as well as a rationale for the use of aggregate data in the analysis. Section 4 elaborates the model that is the focus of the analysis, including hypotheses for the various control variables. Section 5 presents and interprets the findings from the model and compares them to those from prior studies where warranted. Section 6 summarizes the findings of the study and suggests a topic for future research.

2. REVIEW AND EXTENSIONS OF THEORY

Some researchers have questioned whether households even consider local taxes and local public goods and services delivery in their moving decision. For example, in their extensive survey of the empirical literature on Tiebout-type models, Dowding et al. (1994) found mixed results, which casts doubt on the real-world viability of the Tiebout model more generally. But Tiebout (1956, p. 423) himself wrote, "Consumer-voters do not have perfect knowledge and set preferences, nor are they perfectly mobile. The question is how do people actually react in choosing a community?" Similarly, John et al. (1995, p. 382) state that "empirical research will not corroborate the pure model, but can identify how Tiebout factors fit into a complex pattern of behavior," and they supported this statement in their analysis of a postal survey, in which they concluded that moving household respondents acted Tiebout-rationally.

Local government officials often make public policy decisions unwillingly without much input by local residents, as attendance and participation at local government meetings tend to be low. In addition, proposals for large-scale projects involving complex issues tend to be approved

with a low level of discussion, while smaller spending projects with less complexity, such as whether and how to decorate the streets for Christmas, often require extensive discussion.[1] Local officials are seen as passive actors that set a level of taxing and spending, then wait for people to self-select. This can be seen as evidence that Tiebout's assumptions are theoretical and do not represent reality. Some researchers propose to abandon a Tiebout-type model for a property value maximization advocated by Brueckner (1979, 1982, 1983, 2000). Brueckner argues that the Tiebout model provides no decision rule or feedback to local officials. In contrast, Brueckner's property-value maximization provides a solid decision rule and test for Tiebout efficiency. While Brueckner is primarily concerned about the efficiency conclusion, this study is devised to test a Tiebout-like mechanism: whether local fiscal policies have an influence on the location decision of households.

Similar to Brueckner, Henderson's (1980, 1985, 1991) critique of the Tiebout model raises important questions about a Tiebout-type mechanism in determining the population's composition. Rhodes and Strumpf (2003) assess the relevance of Tiebout sorting by testing whether heterogeneity across communities increased in the last 150 years. They conclude that other factors than local public goods overwhelm Tiebout sorting in the long run. In contrast, Dawkins (2005) finds that increased Tiebout choice is associated with higher levels of black-white segregation within U.S. metropolitan areas. The goal of this study, however, is not to investigate the population's composition but to identify whether local fiscal policies influence relocation patterns at the very local level, the closest approximation to a Tiebout-type move.

In contrast to intra-county migration, studies on the role of local government finances in state-to-state migration or county-to-county migration in the U.S. suffer from having to account for the differences in the local labor markets, regional amenities such as climate, topography, and other variables outside the control of local government units (to cite a few examples: Cebula 1975, 2002; Conway and Houtenville 1998, 2001, 2003; Clark and Hunter 1992; Deller et al. 2001; Fox and Porca 2001; Fox et al. 1989; Graves 1979, 1983; Herzog and Schlottmann 1984, 1986; Knapp and Graves 1989; Knapp and White 1992; McGranahan 1999; Mueser and Graves 1995; Porell 1982; Rupashinga and Goetz 2004; Shaw 1986). See Dowding, John, and Biggs (1994) for a survey of over 200 articles on material to Tiebout's concept.

Studying intra-county migration addresses another obstacle in Tiebout-type model: high degrees of geographic aggregation. Intra-county migration can be assumed to be independent from regional labor markets and regional natural amenities, as these exogenous influences on the location decision are reduced significantly by the small distance between two municipalities within a county. Reducing the area of observation to the county level does not completely eliminate very locale-specific quality-of-life factors, such as a house on a golf course, lake, or river, which often motivates homeowners to move. Unfortunately, data for these very locale-specific quality-of-life factors was not available.

This independence from regional labor markets and regional natural amenities allows the researcher to focus on the differences at the local level, such as local taxes, expenditures, housing, and schooling, testing a Tiebout-like mechanism at work. The location decision at the local level is the closest approximation to that Tiebout-like mechanism, allowing a researcher to

[1] As one reviewer suggested, if this is true, this would tell us that Tiebout is wrong. Households do not have to be part of the decision process to vote with their feet. Tiebout only assumes that households are fully aware of local public finances, not their involvement in the decision process.

gain insight into how households respond and sort themselves according to their preference for local public goods and services and the necessary taxes. Furthermore, limiting the scope of the analysis to intra-county migration within one state eliminates the need to control for differences between states. On the downside, the results and possible public policy implications from this study may be limited to Pennsylvania.

One problem with studying the provision of public goods and services at the municipal level is the possibility of spillover effects which may provide households an incentive to free ride. Some residents may live close to high-quality local government units with high levels of expenditures, but far enough away to avoid being taxed for their provision. A testable empirical question is whether competing local government units suffer from outmigration due to high taxes levied to finance high expenditures for the provision of public goods and services.

A challenge in testing the attraction and repulsion of people to government policies is the inability to link quantity (total expenditures) with the end result or quality of the public goods or services. The question of government efficiency in relation to being on the cost curve is limited by the extent to which researchers are able to assess the impact of government expenditures or the lack of government expenditures on the future output quality of the public goods or services that affect the location decisions of individuals. Higher government expenditures do not necessarily mean higher quality goods and services, but may also mean less efficient production and oversupply.

The theoretical reasoning for moving from origin location to destination location is based on the expected utility gain from the move. Empirically, the question is "What are the characteristics of the destination location that motivate the migrant to relocate to the new location, leaving behind a certain utility in the origin location?" In other words, what are the qualities of the new location in terms of housing, education, government services and goods, in combination with taxes that attract an individual to move within its boundaries? The empirical model for estimating intra-county migration in Pennsylvania can be expressed as:

(1) $$M_i = \beta * Dif.Hous. + \alpha * Dif.School + \gamma_1 * Dif.Exp. + \gamma_2 * Dif.Tax + \gamma_3 * LocalChar. + \varepsilon$$

where:

M_i = In-migration rate at the municipal level per 1,000 residents

Dif.Hous. = Differences in the housing characteristics

Dif.School = Differences in the educational characteristics

Dif.Exp. = Differences in the local government expenditures

Dif.Tax = Differences in the local tax rates

LocalChar = Local Characteristics

3. RESEARCH SCOPE: WHY PENNSYLVANIA AND THE PROBLEM OF ANALYZING AGGREGATES

3.1 Limit to One State: Why Pennsylvania?

Pennsylvania is an ideal case study on the importance of local fiscal policies, or a test of whether Tiebout-like forces are at play. First, according to Behr, Christofides, and Neelakantan (2003) Pennsylvania is one of the most fragmented states in the U.S. with over 2,500

municipalities such as cities, boroughs, and townships. This high level of fragmentation provides households with the necessary choice of alternate location that is the base of a Tiebout-like mechanism. With such a large number of municipalities, one might wonder if fiscal illusion would be a problem. While the problem of fiscal illusion cannot be eliminated, one advantage of Pennsylvania is the fact that local property tax bills must be sent to the homeowner directly, which should help mitigate the problem of fiscal illusion. In contrast, many states allow municipalities to send property tax bills directly to the mortgage company that escrows local property taxes.

A second reason why Pennsylvania is ground for a study like the one proposed here is the variance in the count of minor civil divisions (MCDs) across counties. The average number of MCDs in Pennsylvania is 38 with a standard deviation of 21. Cameron County has the fewest local government units with 7, while Allegheny County has 128 local government units.[2] Counties in Pennsylvania range in size from the smallest county with a size of 132 square miles to the largest with a size of 1,244 square miles. The average distance for movers between municipalities in the time range from 1995 to 2000 within a county in Pennsylvania was 9.9 miles (std. dev. of 2) with a minimum of 0.2 miles and a maximum of 44.2 miles. Population in counties in Pennsylvania ranges from a bit less than 5,000 to 1.3 million.

A third reason for choosing Pennsylvania is that in terms of political power, cities, boroughs, and township have very similar powers. For example, all local government units in Pennsylvania have a zoning authority. In addition to collecting property taxes, municipalities in Pennsylvania levy local income taxes that can vary across localities. The average local property tax in 1995 was 1.934 mills with a range between 0 mills and 23 mills. In terms of income taxes, Pennsylvania's income taxes were subject to reforms in the late 1990s. Until 2000, most local income taxes were capped at one percent.

3.2 The Problem of Analyzing Aggregates

Farnham and Sevak (2006) hypothesize that using population aggregates introduces problems of unobserved variables in the heterogeneous populations they represent and, hence, could explain the weak findings in the Tiebout sorting studies. Overcoming the obstacle of using population aggregates rather than individual households is key in testing any Tiebout model. Individual movers may be motivated by different combinations depending on socio-economic characteristics. The classical example is that a family with young children may move in response to better schooling in a particular municipality in contrast while a retiree may be attracted to lower taxes. With the exception of asking each mover, the true motivation for a change in localities is unobservable (see John et al. 1995). Unfortunately, data on individual characteristics of movers at the municipal level are not publicly available; this is a limitation of the present study. The inability to consider various socio-economic groups in their decision to move imposes uniform preferences across movers. The next best solution would be to take a disaggregated approach by looking at different categories of movers.

To overcome the problem of population aggregation, this study employs three strategies. One is to follow Farnham and Sevak (2006) who identify a point in a household's lifecycle, say young families with children and retirees, when demand for specific local public goods and services are quite different. In contrast to Farnham and Sevak (2006), in this analysis the group

[2] Pittsburgh is located in Allegheny County. In contrast to the city of Philadelphia, which is also classified as a county, the Pittsburgh metropolitan area consists of the city of Pittsburgh and surrounding local government units.

of movers is split into two distinct subgroups: *children and retirees*. Retirees are hypothesized to have quite different preferences in terms of taxes and public services than families with school-aged children (for an example of a study focusing solely on elderly migration, see Clark, Knapp, and White, 1996). In order to accomplish this separation into two types of movers, retirees and families with school-aged children, this study defines retirees as anyone over the age of 60. In contrast, families are defined through young adults under the age of 18. Identifying families with school-aged children through school-aged children removes young adults over the age of 18 without children that are hypothesized to have again different demands for specific local public goods and services.

A second strategy in overcoming the obstacle of population aggregate is to split moves into two distinct groups: moves within a school district and moves across school district boundaries. School districts levy the majority of property taxes within a county, with local government units levying only a minor proportion of the total property tax bill. Creating sub-groups for retirees and school-aged children within the analysis of within-school-district moves and across-school-district moves fine tune the sample to the smallest possible difference in local taxes by two distinctively separate movers. This strategy would provide empirical evidence on whether these two groups have different motivations. The main component of property taxes in Pennsylvania is the millage rate assessed by the school district. Thus, this study estimates separate models for each age group for each subgroup: across-school-district and within-school-district moves.

A third strategy in overcoming the obstacle of population aggregate is to split the sample into metropolitan and non-metropolitan counties within the two age groups. Movers in metropolitan counties may display different sets of preferences than movers in non-metropolitan counties. Movers in metropolitan counties are hypothesized to be suburban movers with various reasons for moving. Metropolitan counties are defined by the 1993 urban influence code. Once again metropolitan and non-metropolitan movers are further divided into the three subgroups (no restrictions, school-aged movers, and retirees).

4. THE MODEL: SPECIFICATIONS, CONTROL VARIABLES, EMPIRICAL STRATEGY, AND DATA

4.1 Proxies for Tax Liabilities and Fiscal Demand

The inability to use precise proxies for tax liabilities at the individual or household level to assess the tax is a problem in a Tiebout-type model. Farnham and Sevak (2006) hypothesize that this could explain the weak findings in Tiebout sorting studies. To overcome the approximation of property tax liabilities obstacle, this study addresses these problems in a number of ways. First, in this study the local property tax rates are the adjusted property taxes. In Pennsylvania, local property taxes are assessed by the municipality, school district, and county. For the purpose of this paper, local property taxes are defined as the combination of school district millage rate and municipal millage rate. The county millage rate, which is the same for each mover, is excluded from the data set. Each municipality or school district assesses the value of houses at different times, resulting in millage rates based on housing values assessed at different levels. As a result, the comparison between local property taxes is difficult. In this study, the adjusted property tax rates are used. The millage rates are adjusted for differences between market value and assessed value to create a data set with uniform millage rates that are comparable across municipalities.

A second form of a local tax in Pennsylvania is the local income tax levied by the municipality and the school district. Local income taxes vary from municipality to municipality and school district to school district. Local income taxes were capped at one percent (0.5 percent for both municipality and school district) until the late 1990s. Only recently through a tax reform have local government units and school districts been allowed to levy income taxes beyond 0.5 percent. Because local income taxes were mostly capped for the time frame of the study, local income tax differences were excluded from the model.

The second strategy to overcome imprecise tax expenditure is to use specific expenditure categories that are common among most local government units, such as fire protection, law enforcement, roads, and general (not specified) government expenditures. The fiscal equivalence theorem posits that government units produce and provide the public goods and services local residents have paid for with their taxes. Thus, government expenditures, or what public goods and services a local government unit decides to provide for its residents are another important aspect in the location decision of households. Whether a local government unit uses tax revenue to fund infrastructure projects such as roads, sewer, and water or to invest in education, libraries, arts, and entertainment has important implications.

4.2 Control Variable: Push versus Pull Factors

According to John et al. (1995, p. 384) a household decision to move can be divided into two factors: push, "the decision to move from the existing location," and pull, "the decision to move to a new location." For a more recent discussion on push versus pull, see Knapp, White, and Clark (2001). Survey results show that push factors are much more closely tied to dwelling and community characteristics as well as family life-cycle changes. However, John et al. (1995) find that 18.5 percent of movers consider services, while 19 percent of movers consider taxes important. In contrast, the authors show that Tiebout reasons are more important as pull factors (41 percent find taxes to be important).

For the purpose of this study, push factors such as education, housing, and municipal characteristics are being employed at the county and municipal level. While differences in these factors serve as pull factors, current conditions within a county may impact the decision to move, thus serving as push factors. For example, assuming the same level of utility gain, households in relatively nice areas are hypothesized to be less likely to move than households in poorer areas since their share of overall utility gained from a move is likely to be lower ceteris paribus. Socio-economic characteristics may influence the decision to relocate within a county. Push factors included as control variables are percent of population with high school degree, percent of population in poverty, percent of population working within the same county, and percent of population working within the municipality. Pull factors included as control variables are difference in per capita income and percent with high school degree.

Some school districts are perceived to be more desirable than others. Certain households avoid moving outside their present school district even in the face of higher taxes and lower expenditures on other public goods and services. Thus, a control variable for a change in school districts is necessary. For a change in school districts, two additional control variables were introduced to control for differences between two school districts: the difference in expenditures

Per student from the 1992 Census of Government and the SAT scores from 2001 between origin and destination county.[3]

Even though this study only looks at intra-county moves, where the distance between two municipalities is generally small, a distance variable was included in the specification. The distance variable is intended to capture two types of costs: (1) out-of-pocket expenses of a move, and (2) psychic costs such as moving away from friends, neighbors, and family. The true cost of moving, such as selling and buying a house and other adjustment costs, cannot be captured.

Another cause of intra-county migration is the availability of better housing options in another local government unit through either new housing construction or vacant existing housing structures. Local government units do not have a strong influence on the availability of existing housing structures. Local governments, however, are able to influence new housing construction. In particular, in Pennsylvania the zoning authority often rests with the local government unit. In addition, a second mechanism through which local government units are able to influence the construction of new housing development is through public infrastructure investments. The expansion and construction of roads and sewer and water lines into new housing developments allows land developers to convert agricultural and forested land into subdivisions more easily, thereby attracting new in-migrants. Local property taxes are another important tool of local government units in attracting new housing construction. Relatively lower property taxes may serve as an incentive for both the construction of housing units and the relocation of households to within the boundaries of the low-tax government unit. In order to control for a move based on the availability of new housing, the change in the housing stock from 1990 to 2000 in the destination county is added.

Several control variables for municipal characteristics were included to control for variation across municipalities. The difference in the percentage of owner-occupied homes is included as a control variable. In addition, the median home value is included to control for differences in the cost of housing between origin and destination.

Similar to control variables for municipal characteristics, control variables for county characteristics were added to the regression. Counties themselves in Pennsylvania will vary in characteristics beyond the metropolitan/nonmetropolitan designation. They vary in terms of their relative location in Pennsylvania as well as socio-economic characteristics, for example a county near the greater Philadelphia metropolitan area versus a county in rural northcentral Pennsylvania. In order to control for differences between counties, this study used control variables at the county level for amenity values, per capita income, and unemployment rate.

Finally, dummy variables were included to distinguish different types of moves: from rural to urban areas and urban areas to rural areas as defined by the census as percent of population living in rural versus urban areas.

4.3 Empirical Strategy

The empirical strategy is to use 2000 census data to compute, for each potential pair of municipalities (MCDs) within the same county in Pennsylvania, the number of migrants out of a sending MCD into a receiving (destination) MCD. In the model, the dependent variable is the

[3] Whether additional school funding improves test scores sufficiently is hotly debated. The literature on school funding is beyond the scope of this study, but for example, Hilber and Mayer (2003) in a study on local school funding and fiscal equalization concluded that how local school districts are able to spend and raise money has important implications.

intra-county in-migration rate per 1,000 residents for the 66 counties in Pennsylvania, excluding the county of Philadelphia, from 1995 to 2000. The independent variables can be categorized into four categories: (1) schooling, (2) local taxes, (3) local government expenditures, (4) housing, and (5) local characteristics. In the schooling category the independent variables are whether the move within the county was between two school districts. If the move was to a new school district, this study controlled for the difference between the SAT scores and expenditures per student between the destination school minus the origin school. In the local taxation category, the independent variable is the adjusted property tax. In the third category, local government expenditures, the independent variables are the difference in expenditures between destination and origin MCD for fire protection, other general government, law enforcement, and roads, as well as government expenditures per capita. Lastly, this study controlled for the construction of new housing units from 1990 to 2000 with the change in the number of housing units in the destination municipality.

4.4 Data

In order to examine the influence of local taxes and expenditures, as well as housing and schooling on the decision to move, a data set with observations on the number of people moving within a county (number of in-migrants)[4] was assembled from the data available from the 2000 Census. The data set provides numbers of migrants between minor civil divisions (MCDs) in Pennsylvania. The Census tracked the number of people moving from 1995 to 2000. A person in this data set could have moved from one MCD to another at any time between 1995 and 2000. It is also possible that a person or household moved more than once in the time frame. In the end, the data set included close to 33,000 observations. Each observation is the move of at least one person from the origin MCD in 1995 to the destination MCD in 2000. The migration rate is the rate per 1,000 residents in the origin county, as municipalities with more population will have a higher number of movers than municipalities with small population.

A data set with local government expenditures broken into expenditure categories defined by the Census was assembled with data from the 1992 Census of Government.[5] In using the 1992 data versus the 1997 data, the model allows for an information lag. Households are assumed to have knowledge of local government finances; however, the decision to move is assumed to be not instantaneous but time delayed. Every five years the Census collects information on expenditures, revenues, and inter-governmental transfers for every unit of government, such as state, county, cities, towns, boroughs, townships, and special districts within the U.S. and its territories. For each expenditure category the difference in per capita expenditure per $1000 is taken. General government expenditures are unclassified expenditures. Total government expenditure is defined as the sum of all expenditures by a local government unit. Total government expenditures are not the sum of fire, law, road, and general but many more categories.[6] Many small municipalities do not provide the same scope of services as larger

[4] Note: This is NOT the net-migration rate, but the pure number of in-migrants to a MCD.

[5] One reviewer correctly identified a concern with the general reliability of the Census of Government data. The Census of Government provides detailed information on how data is obtained, imputed, and checked for reliability. The state of Pennsylvania collects similar data on local government finances, as does the Census of Government. Census of Government data was checked against the Pennsylvania data. No significant reliability issues were apparent.

[6] Other categories are health services, natural resources, welfare, airport, utilities, waste management, sewerage, libraries, etc. Many smaller municipalities do not have expenditures in each category.

municipalities. Most local government units have expenditures on law enforcement, fire protection, and roads; fewer government units have expenditures on parks and recreation.

SAT scores for each school district were gathered from the Pennsylvania Department of Education for 2001, the earliest period for which SAT scores were available. In very few instances school districts did not follow political boundary lines. As a result, some local government units belong to two individual school districts. In this case, the local government units were assigned to the local school district according to Census of Government rules. In all cases, school districts were matched with local government units.

Local tax rate information was assembled from the Pennsylvania Department of Community and Economic Development for the year 1995. Local property tax rates tend not to change dramatically over short time periods. The change in the number of housing units in the destination municipality from 1990 to 2000 is taken from the 1990 and 2000 Census data set. Municipal characteristics—per capita income, percent high school graduates, percent owner-occupied housing, and rural-urban population—were taken from the 1990 Census data set. The Census Gazetteer file was used to calculate the distance between individual local government units. The amenity scale data was assembled from the ERS/USDA. The scale was constructed by combining six measures of climate, topography, and water area that reflect environmental qualities most people prefer.[7]

As shown in Table 1, the number of movers ranges from 1 to 8,668 with a mean of 40. The migration rate (movers per 1,000 residents) ranges from 0.01 to 355 with a mean of 11 movers per 1,000 residents (see Table 2). The adjusted property tax rate ranges from 0 mills to 23 mills with a mean of 1.934 mills; some school districts encompass the entire county, so there is no difference between townships within a county. Summary statistics reveal that on average intra-county movers moved to local government units with lower taxes across all categories and lower expenditures across all categories with the exception of expenditures on roads. In the case of moves to a different school district, on average movers preferred school districts with higher SAT scores and lower expenditures per student. Naturally, the average mover moved to local government units with a positive change in the number of housing units.

Table 1: Local Government Finance and Moving Statistics for Destination Municipality

Variable in $1,000 for destination	*N*	Mean	Std. Dev.	Minimum	Maximum
Gov. Exp. On Fire Protection per Resident	2,436	10.37	12.35	0.17	233
General Gov. Expenditure per Resident	2,596	78.07	101.79	2.09	2,227
Gov. Exp. On Law Enforcement per Resident	2,180	36.31	140.39	0.14	6,318
Gov. Exp. On Roads per Resident	2,597	76.16	224.20	3.44	10,818
Total Government Expenditures per Resident	2,602	240.69	508.74	6.37	23,318
Adjusted property taxes	2,571	1.93	2.00	0	23.00
Distance of Move	32,702	9.89	6.07	0.20	44.29
Number of movers	32,702	39.98	122.33	1	8,668

[7] For more detail please see the ERS/USDA website at http://www.ers.usda.gov/Briefing/RuralAmenities/naturalamenities.htm.

Table 2: Difference in Variables between Origin and Destination

Variable	*N*	Mean	Std. Dev.	Minimum	Maximum
Migration rate per 1,000 residents	32,867	10.72	18.53	0.01	354.84
Dummy variable indicating change of school district	32,894	0.784	0.41	0	1
Diff. in SAT Scores if move to another school district	32,426	-1.88	68.80	-438.00	395.00
Diff. in exp. per student if move to another district	32,650	1.77	213.68	-999.58	999.58
Change in housing units from 1990 to 2000	32,860	0.1976	1.9740	-0.9817	57.0323
Diff. in adjusted property taxes	32,868	0.4246	2.7687	-23.004	23.004
Dummy move to urban area	32,894	0.2172	0.4123	0	1
Dummy move to rural area	32,894	0.1448	0.3519	0	1
Diff. in percent with a high school degree in 1990	32,764	-0.0045	0.1465	-0.7174	0.7174
Diff. in per capita income 1989	32,764	-135.42	5,171.57	-60,675	60,254
Diff. in percent owner occupied	32,756	-0.0361	0.17	-0.74	0.81
Diff. in median home value	32,756	-2,742	35,221	-402,800	403,000
Diff. in gov't exp. on fire protection per resident	30,089	1.32	22.16	-226.76	226.93
Diff. in gov't exp. on law enforcement per resident	32,771	13.65	145.81	-1,061.65	1,064.45
Diff. in gov't exp. on roads per resident	28,514	6.52	48.68	-465.97	447.46
Diff. in general gov't expenditure per resident	32,829	-5.06	63.11	-1,404.97	716.37

5. DISCUSSION AND INTERPRETATION OF RESULTS

All together this study estimated 15 models; please see Table 3 and 4 for results. The full model including all moves had about 33,000 observations due to missing values. At the end the study used a bit less than 26,000 observations. Separate models were estimated for moves across school district boundaries (4,867 observations used) and moves within school district boundaries (20,995 observations used). Subgroups were created for (1) school-aged children to estimate results for families and for (2) retirees. The first nine models are presented in Table 3. The full model of school-aged children has 12,431 observations: 3,276 observations within school districts and 9,155 observations across school districts. The full model for retirees has 7,940 observations: within school districts 2,015 observations, across school districts 5,925 observations. In addition, a second subsample was created for the full sample as well as the school-aged and retirees subgroup for metropolitan and nonmetropolitan counties (See Table 4 for results).[8]

An obstacle in using OLS estimation with this type of data is the assumption in an OLS regression that residuals are independent. In this study all approximately 25,000 observations came from 66 counties in Pennsylvania. Therefore, the data is clustered in 66 counties. In clustered data the outcomes from the same cluster, in this study the county, are likely to be positively correlated. This means that observations within each county may not be independent, leading to residuals that are not independent. Therefore, clustering correction in the calculation of the standard errors was used within SAS to cluster observations that may be correlated within counties, but are independent between counties.[9]

The coefficient for change in school district is statistically significant and negative in all model specifications indicating that movers were deterred by across school district moves.

[8] Chow tests were conducted to confirm the structural break in the data set between within school district moves and outside school district moves and between metropolitan and non-metropolitan moves. All two tests confirmed the break at the 99 percent confidence interval.

[9] For more details on the clustering correction, please see Introduction to SAS on the website http://www.ats.ucla.edu/stat/sas/notes2/.

Table 3: Regression Results by Age Group and Geographic Area

Variable	All Ages			Age Group < 19 years			Age Group > 60 years		
	Full Model	Within School District	Across School District	Full Model	Within School District	Across School District	Full Model	Within School District	Across School District
Intercept	18.73***	30.98**	6.88**	24.66***	41.95***	9.53	26.56***	47.85***	4.42
	(4.80)	(2.88)	(2.00)	(4.06)	(3.23)	(1.61)	(3.52)	(3.2)	(0.64)
Dummy variable indicating change of district	-9.485***			-10.4***			-13.56***		
	(-19.89)			(-16.01)			(-14.32)		
Dif. in SAT scores if move to another district	0.001		0.001	0.002		0.001	-0.002		-0.002
	(0.20)		(0.10)	(0.22)		(0.15)	(-0.28)		(-0.22)
Dif. in exp. per student if to another district	-0.001		-0.001	-0.002*		-0.002	-0.003*		-0.002
	(-1.64)		(-1.11)	(-1.82)		(-1.30)	(-1.75)		(-1.32)
Change in housing units from 1990 to 2000	0.05*	0.379	0.011	0.021	0.24	-0.023	0.019	0.077	-0.016
	(1.85)	(1.98)	(0.51)	(0.62)	(1.49)	(-0.71)	(0.50)	(0.77)	(-0.44)
Difference in adjusted property taxes	0.915***	0.858**	0.819***	1.25***	0.906**	1.262***	1.354***	0.94**	1.368***
	(7.45)	(2.39)	(5.62)	(6.47)	(2.14)	(5.24)	(6.20)	(2.30)	(5.12)
Distance of move	-0.692***	-2.074***	-0.566***	-1.081***	-2.574***	-0.893***	-1.33***	-3.066***	-1.127***
	(-12.40)	(-12.34)	(-13.32)	(-13.33)	(-14.09)	(-13.08)	(-12.91)	(-12.25)	(-12.56)
Gov't units per capita	5.598**	8.389*	4.804**	8.941***	11.62**	7.46**	9.907**	14.526**	9.092***
	(2.54)	(1.70)	(2.42)	(2.86)	(2.03)	(2.55)	(2.49)	(2.23)	(2.59)
Dummy, if municipality is in small metro	3.112***	5.65***	2.439***	3.778***	5.724**	2.929**	6.271***	10.138***	4.447***
	(3.68)	(2.70)	(3.10)	(2.95)	(2.29)	(2.43)	(4.17)	(3.36)	(2.89)
Dummy, if municipality is rural	1.954	7.109	-0.428	2.467	8.165*	-1.284	3.939	10.139*	-0.042
	(1.36)	(1.62)	(-0.30)	(1.23)	(1.73)	(-0.64)	(1.31)	(1.85)	(-0.01)
Dummy, if muni adjacent to large metro	3.08**	4.6**	2.926*	3.557**	4.776*	3.367	5.034**	6.361**	4.523
	(2.34)	(2.02)	(1.86)	(2.17)	(1.74)	(1.38)	(2.52)	(2.25)	(1.4)
Dummy, if muni is adjacent to small metro	3.349***	8.759***	2.138*	4.19**	9.505***	2.495	7.505***	14.014***	3.903*
	(2.67)	(3.46)	(1.83)	(2.42)	(3.34)	(1.43)	(3.67)	(4.01)	(1.93)
1989 county per capita income	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.58)	(-0.52)	(0.61)	(0.17)	(-0.88)	(0.41)	(0.47)	(-0.75)	(1.07)
County unemployment rate	-0.686*	-1.289*	-0.471	-0.94*	-1.722**	-0.603	-1.415**	-1.921*	-1.082*
	(-1.84)	(-1.78)	(-1.4)	(-1.71)	(-2.02)	(-1.12)	(-2.26)	(-1.88)	(-1.87)
Percent of population working in county	1.554	-1.829	1.962	4.984**	0.724	5.863**	3.59	-3.754	5.599*
	(0.96)	(-0.46)	(1.39)	(2.22)	(0.15)	(3.02)	(1.13)	(-0.61)	(1.93)
Percent of pop working in municipality	6.161***	8.142**	7.136***	5.231	1.134	7.804**	4.099	-5.927	10.827*
	(3.23)	(2.26)	(3.32)	(1.46)	(0.23)	(2.06)	(0.82)	(-1.00)	(2.15)

Table 3: Regression Results by Age Group and Geographic Area, continued

Variable	All Ages			Age Group < 19 years			Age Group > 60 years		
	Full Model	Within School District	Across School District	Full Model	Within School District	Across School District	Full Model	Within School District	Across School District
Amenity Scale	-0.62	-1.199	-0.551	-0.804	-1.066	-0.697	-1.094	-0.962	-0.995
	(-1.55)	(-1.22)	(-1.3)	(-1.31)	(-0.92)	(-1.09)	(-1.45)	(-0.73)	(-1.06)
Dummy, if move from rural to urban	2.417***	7.006***	1.509***	3.476***	7.572***	2.289***	4.217***	7.018***	3.263***
	(4.07)	(4.19)	(2.88)	(3.72)	(3.66)	(2.64)	(3.40)	(2.91)	(2.87)
Dummy, if move from urban to rural	1.041***	1.819	0.403	1.142	0.416	0.77	1.371	1.592	1.01
	(2.66)	(1.36)	(1.15)	(1.58)	(0.28)	(0.94)	(1.46)	(0.87)	(0.88)
Percent of population in poverty	0.211***	0.448***	0.127***	0.275***	0.507***	0.149**	0.398***	0.671***	0.209***
	(6.29)	(5.09)	(3.84)	(4.54)	(4.05)	(2.49)	(6.93)	(4.26)	(3.78)
Percent of population with HS degree	-2.563	-9.161	0.274	-3.868	-10.047	0.768	0.153	-11.128	8.03**
	(-1.27)	(-1.60)	(0.15)	(-1.15)	(-1.41)	(0.23)	(0.04)	(-1.26)	(2.05)
Difference in percent HS degree in 1990	-7.097***	-17.88***	-3.897***	-8.845***	-16.705***	-4.49	-10.672**	-20.362**	-5.212
	(-3.26)	(-4.07)	(-1.99)	(-2.63)	(-2.82)	(-1.45)	(-2.59)	(-2.54)	(-1.42)
Difference in 1989 per capita income	-0.0002***	-0.0001	-0.0002**	-0.0003**	0.0001	-0.0003**	-0.0002*	0.0002	-0.0003**
	(-2.74)	(-0.81)	(-2.56)	(-2.42)	(-0.30)	(-2.44)	(-1.76)	(0.7)	(-2.27)
Difference in percent owner-occupied housing	-8.11***	-32.74***	-2.287	-10.78***	-30.84***	-2.593	-16.14***	-41.67***	-5.19
	(-2.88)	(-6.62)	(-0.93)	(-3.21)	(-5.26)	(-0.82)	(-3.85)	(-5.72)	(-1.19)
Difference in median home value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.63)	-(0.57)	(0.45)	(0.79)	-(0.72)	(0.94)	(0.52)	-(1.63)	(0.74)
Difference in gov't exp on fire prot per res	0.122***	0.196***	0.128***	0.155***	0.274***	0.16***	0.184***	0.275***	0.19***
	(5.47)	(5.04)	(5.44)	(5.26)	(5.99)	(4.95)	(6.62)	(4.85)	(5.99)
Difference in general gov't exp. per resident	0.006***	0.011**	0.005**	0.008***	0.011*	0.007***	0.007	0.017*	0.002
	(2.92)	(2.26)	(2.36)	(2.93)	(1.82)	(2.72)	(1.53)	(1.93)	(0.66)
Difference in exp. on law enforce per resident	0.011**	0.045**	0.005	0.019***	0.039**	0.011*	0.023***	0.05**	0.011
	(2.41)	(3.04)	(1.16)	(3.08)	(2.17)	(1.68)	(3.04)	(2.24)	(1.32)
Difference in gov't exp. on roads per resident	-0.012**	-0.014	-0.011**	-0.016**	-0.019**	-0.013**	-0.026***	-0.021*	-0.026***
	(-2.56)	(-1.64)	(-2.32)	(-2.5)	(-1.96)	(-2.03)	(-2.88)	(-1.68)	(-2.69)
Difference in total gov't exp. per resident	0.0005	-0.0007	0.0002	0.0003	0.0001	0.0003	0.001	-0.005	0.005*
	(0.17)	(-0.83)	(0.62)	(0.22)	(0.08)	(0.28)	(0.34)	(-1.35)	(1.78)
Number of observations	25,863	4,867	20,996	12,431	3,276	9,155	7,940	2,015	5,925

Notes: z-value in parentheses. *, **, and *** indicate two-tailed statistical significance with 90, 95, and 99 percent confidence respectively.

Table 4: Regression Results for Metro versus Nonmetro Areas

Variable	Full Model		School-aged children		Retirees	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Intercept	15.54	19.65	20.03	26.56	15.8	36.66
	(3.60)	(1.89)	(2.82)	(1.56)	(1.96)	(1.74)
Dummy variable indicating change of district	-9.17***	-9.45***	-10.00***	-10.82***	-12.59***	-15.06***
	(-16.34)	(-11.74)	(-12.96)	(-11.36)	(-11.31)	(-10.23)
Dif. in SAT Scores if move to another district	0.004	-0.017**	0.005	-0.025**	0.002	-0.024
	(0.65)	(-2.17)	(0.7)	(-2.11)	(0.21)	(-1.45)
Dif. in exp. per student if move to another district	-0.001*	-0.001	-0.0024**	-0.0007	-0.0026*	0.0002
	(-1.73)	(-0.57)	(-2.06)	(-0.25)	(-1.84)	(0.05)
Change in housing units from 1990 to 2000	0.054**	9.44***	0.03	11.89***	0.037	21.46***
	(1.99)	(4.03)	(0.81)	(2.87)	(0.95)	(3.41)
Difference in adjusted property taxes	0.932***	0.534***	1.407***	0.618***	1.507***	0.575***
	(5.71)	(3.26)	(6.07)	(3.02)	(5.34)	(2.93)
Distance of move	-0.608***	-1.11***	-0.967***	-1.627***	-1.216***	-1.908***
	(-11.44)	(-12.93)	(-11.77)	(-14.67)	(-11.01)	(-11.25)
Gov't units per capita	11.36***	3.172	17.31***	5.57*	23.87***	4.43
	(3.46)	(1.52)	(3.76)	(1.81)	(3.86)	(1.44)
Per capita income in 1989 for the county	0.00001	0.001**	0.00001	0.001	0.00001	0.001
	-(0.15)	(2.00)	-(0.31)	(1.62)	(0.43)	(1.08)
Unemployment rate for the county	-0.53	-0.179	-0.788	-0.378	-0.902	-1.029*
	(-1.21)	(-0.49)	(-1.2)	(-0.65)	(-1.14)	(-1.93)
Percent of population working within county	2.757	6.565***	6.759**	10.57***	6.322*	13.50**
	(1.35)	(3.48)	(2.32)	(3.57)	(1.67)	(2.46)
Percent of population working within municipality	9.156***	1.801	10.584**	-4.708	11.828*	-7.93**
	(3.50)	(1.06)	(2.39)	-(1.48)	(1.88)	-(2.03)
Amenity scale	-1.042*	-0.91*	-1.365*	-0.944	-1.49	-2.419***
	(-1.85)	(-1.71)	(-1.76)	(-1.16)	(-1.46)	(-2.66)
Dummy, if move from rural to urban	1.874***	5.524***	2.893***	6.288***	3.882***	7.026***
	(3.04)	(4.07)	(2.82)	(3.66)	(2.81)	(3.07)
Dummy, if move from urban to rural	0.704*	1.241	1.046	0.55	0.949	0.186
	(1.68)	(1.60)	(1.29)	(0.47)	(0.88)	(0.16)
Percent of population in poverty	0.104***	0.315***	0.150***	0.414***	0.178***	0.521***
	(3.36)	(5.93)	(2.73)	(4.31)	(3.06)	(3.51)
Percent of population with HS degree	2.937*	-19.37***	2.358	-24.73**	10.807***	-24.38*
	(1.69)	-(3.44)	(0.75)	-(2.54)	(2.79)	-(1.69)
Difference in percent HS degree in 1990	-4.623**	-11.925***	-7.252*	-12.905*	-7.547*	-12.054
	(-2.05)	(-2.69)	(-1.92)	(-2.01)	(-1.67)	(-1.38)
Difference in per capita income in 1989	0.00001**	0.00001	0.0003**	0.00001	0.0003*	0.0004
	(-2.19)	(-0.27)	(-2.07)	(-0.02)	(-1.66)	(0.88)
Difference in percent owner-occupied housing	-5.65**	-15.87***	-8.196**	-18.91***	-12.18***	-24.26***
	(-1.99)	(-5.01)	(-2.35)	(-3.43)	(-2.75)	(-3.14)
Difference in median home value	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
	(0.25)	(0.95)	(0.57)	(0.59)	(0.42)	(0.09)
Difference in gov't exp. on fire protection per resident	0.128***	0.093**	0.157***	0.133**	0.183***	0.172***
	(5.04)	(2.05)	(4.74)	(2.37)	(5.67)	(2.87)
Difference in general gov't exp. per resident	0.008***	-0.003	0.011***	0.001	0.011**	-0.005
	(3.29)	(-0.46)	(3.36)	(0.15)	(2.13)	(-0.60)
Difference in exp. on law enforcement per resident	0.010**	0.031**	0.017***	0.029	0.021***	0.035
	(2.23)	(1.97)	(3.29)	(1.32)	(3.19)	(1.35)
Difference in gov't exp. on roads per resident	-0.015**	-0.008	-0.021***	-0.003	-0.033***	-0.008
	(-2.37)	(-1.34)	(-2.57)	(-0.34)	(-3.56)	(-0.71)
Difference in total gov't expenditure per resident	0.00001	0.003	0.0002	0.0006	0.001	0.0046
	(-0.04)	(0.65)	(0.13)	(0.10)	(0.26)	(0.79)
# of observations	25,863	21,112	9,911	2,520	6,445	1,495

Notes: z-value in parentheses. *, **, and *** indicate two-tailed statistical significance with 90, 95, and 99 percent confidence respectively.

School districts often create a, some may argue an artificial, kind of local identity within an often small area. School pride and school loyalty may deter residents from moving across school district lines. A second interpretation is based on the fact that school taxes in the form of property taxes represent the biggest component of local taxes paid. Any move across school district lines ultimately means a change in local taxes.

In this case, the move is to a new school district; the coefficient for SAT scores is only statistically significant and negative in two specifications in the non-metropolitan county model and not statistically significant in all other models.. The coefficient for expenditure per student is statistically significant and negative in all three specifications for both the metropolitan model and the full model for all ages, school-aged children, and retirees. These results seem to indicate that once households decide to move across school district lines expenditures per students tends to be more influential in the moving decision than SAT scores. Both estimation results provide evidence that better school quality when measured with SAT scores or expenditures is not a factor in the decision.

The coefficient for the change in the housing stock is statistically significant and positive in all models of nonmetropolitan areas, full models for metropolitan areas, and the full model. The change in the housing stock is more important in nonmetropolitan areas, which is consistent with the theory that households in suburbs move more frequently.[10] This result may capture the general trend of moving to the urban fringe where new housing construction is primarily occurring. In addition, this result may also capture the general trend of households in suburbs moving more frequently to adjust to changes in lifestyle requirements. Young people may move from their starter home to a more family friendly home, while older people may downsize their homes.

In terms of socio-economic characteristic or push factors at the county level, per capita income is not statistically significant. In contrast, the coefficient for unemployment rates in the county is statistically significant and negative in two of the three major models. This result seems to indicate that in counties with higher unemployment rate, people are less likely to move within the county. One interpretation could be that people in counties with lower unemployment are more apt to adjust their living arrangements to prevailing circumstances than to move. For example, a family with steady income may move to a bigger home in a different municipality. It is interesting that this result is independent of whether the county is characterized as metropolitan or nonmetropolitan.

The coefficient for percent of population working within the county and working within the same municipality is statistically significant and positive in all specifications in the metro/non-metropolitan model with some exceptions. This indicates that residential mobility is encouraged by the availability of potential employment opportunities in the county or municipalities. The higher the share of people working within the limited space of the county or municipality, the more likely it is that households will move there.

An interesting result is the consistent negative and statistically significant coefficient for amenity scale value in some model specifications. One interpretation of this could be that people

[10] The model was estimated with more detailed housing variables to eliminate misspecification due to missing variables on housing characteristics such as number of rooms, median age of housing stock, level of occupancy (vacancy rate, level of houses boarded up). They were included in the model without any statistically significance or change in the results. They were not included in the final specification.

in high-amenity counties are more likely to be content with their location or to find fewer opportunities for a move since more nearby counties are likely to have a lower amenity set. In summary, households may trade amenity value for a better public finance mixture. In addition, the amenity scale does not vary significantly across counties in Pennsylvania, on a scale from more than 3 to less than -2, counties in Pennsylvania varies from 1 to -1 across the entire state.

At the municipal level, several push factors are statistically significant. Movers generally seem to avoid municipalities with a higher poverty level. While education level at the origin does matter in both metropolitan and nonmetropolitan models but not in the other models, educational difference does matter in most models with movers avoiding municipalities with higher percent of residents with high school degrees only. Similarly, movers generally tend to prefer municipalities with lower per capita income; exceptions are retirees and nonmetropolitan county movers. This may be an indicator of the search for affordable housing in neighborhoods with well-educated neighbors. A bit surprising is the statistically significant and negative coefficient of the difference in owner-occupied housing with the exception of retirees and movers across school district lines.

The dummy variable for moves from rural to urban areas is statistically significant and positive in all specifications; the dummy variable for urban to rural areas is only statistically significant in few specifications. This result tends to indicate that generally moves are towards urban areas and away from rural areas. Similarly, the coefficient for the dummy variable for defining the county as small metro, adjacent to large metropolitan or adjacent to small metropolitan is statistically significant and positive. The strong statistical significance of these three dummy variables confirms that suburbs see most of the movers. As expected, the coefficient for the distance of the move is statistically significant and negative, confirming that the willingness to move decreases with the distance.

Tiebout assumes that government units are competing with each other for households. A critical aspect of local government competition is the existence of choice. The coefficient for government units per capita, which measures the availability to choose an alternate municipality, is statistically significant and positive in all specifications with only two exceptions: the full-model nonmetropolitan and retiree nonmetropolitan model. The positive sign of the coefficient provides evidence that with an increase in the number of local government units per capita, an indicator of the availability of choice, households that have more choices in their location decision are more likely to move. Counties with few government units per capita do not have many municipalities for people to choose from, in this case households are "stuck" with their municipality. This result may be an indicator that Tiebout-type moves are taking place, that an alternate municipality may offer a better tax/expenditure combination. One may also argue as the choice of government units increase, the likelihood of fiscal illusion may increase as well.

The coefficient for adjusted property taxes is consistently statistically significant and positive across all model specifications. The consistent positive sign on the adjusted property tax coefficient across all specifications seems to indicate that households tend to move from lower taxed MCDs to MCDs with higher adjusted property taxes, all else being constant. This is the key finding of this study. This result is not surprising, since Oates (1969) found that higher property taxes are not necessarily a deterrent. Knapp, White, and Clark (2001) found similar results that households do not necessarily avoid government units with higher taxes. Hilber and Mayer (2009) found in their study that funding for a local school district increases as the control over how and what the tax money is used for increased at the local level. The ability of residents

to effectively influence the production and provision of public goods and services at the local level may encourage local residents to support a wider assortment of public policies. A similar effect may be at work this case. At the local level residents may have the impression, real or perceived, that they can exert more control over local government spending, thus residents may be willing to support higher taxes to fund local projects.

The regression results in terms of local government expenditures generally support the notion that specific local government expenditures are encouraging in-migration while discouraging current residents to move. Specifically, the coefficient for the difference in government expenditures between the destination and the origin county for fire protection is statistically significant and positive across specifications. The coefficient for road expenditures is statistically significant but negative across all model specifications with the exception of nonmetropolitan counties. The coefficient for law enforcement is statistically significant and positive in all specifications with the exception of age specific specification for nonmetropolitan counties, as well as across school districts in the retiree and all-ages specification. The coefficient for non-specific government expenditures per capita is statistically significant in all models with the exception of all nonmetropolitan models and the retiree models.

The positive coefficient for more government spending on fire protection and in fewer cases for law enforcement and general government expenditures seems to indicate that residents value these public goods and services and base their location decision accordingly, all else being constant. If higher expenditures for fire protection and law enforcement are an indication of higher quality, local residents are drawn to better local provision of these services.

In summary, regression results seem to indicate that local expenditures for law enforcement and fire protection are more important to local residents than expenditures on roads. An alternative interpretation is that road expenditures are often a result of road construction and usage. Better roads or less frequented roads that can be found in suburbs need fewer repairs than low-quality roads or highly frequented roads in cities. Fire protection, law enforcement, and roads are probably the most visible public goods and services.

6. CONCLUSION

The advantage of local government units is the strong visibility of local government expenditures along with the ability to hold elected government officials responsible for their actions in this regard. The ability of residents to effectively influence the production and provision of public goods and services at the local level may encourage local residents to support a wider assortment of public policies. The findings from this study reveal a preference by movers for local control over public expenditures, which helps explain the positive sign of the coefficient for certain clearly defined expenditure categories.

Proponents of government consolidation posit that high degrees of government fragmentation lead to high levels of government competition, resulting in sub-optimal provision of public goods and services through their inability to levy local taxes, the occurrence of free riding, and inadequate funding for public projects. The positive sign for the adjusted property tax coefficients indicates that local residents are willing to pay for local services or at least are not avoiding high tax municipalities.

This paper expands the already expansive literature on the Tiebout hypothesis with an important extension that the literature has largely ignored. Tiebout's "vote with your feet"

hypothesis is based on several strong assumptions of perfect knowledge, strong competition among local government units, and costless migration. This paper posits that short moves among MCDs within a county provide the researcher with the closest testable scenario of a Tiebout-type move. Local government units provide the best opportunity for residents to gain close to full knowledge of local taxes and government expenditures, as well as observe the quality of local public goods and services. Local government units within a county are close in distance, which lowers the fixed cost of moving and provides local residents with easy comparison among competing jurisdictions.

This study provides readers with several interesting results. First, intra-county moves are strongly discouraged by a change in school districts. In terms of local taxes this study finds that intra-county moves tend not to be deterred by higher property taxes. Furthermore, the higher level of per capita government expenditures on visible local public services such as fire protection and law enforcement does attract intra-county movers.

The results from this study provide evidence that challenges the notion that households prefer local government units with the lowest possible taxes, while at the same time expecting high-quality service delivery. This result also challenges the common view that lowest possible taxes can only be achieved by lowering service level. The results provide evidence that local movers do not avoid higher taxed municipalities as long as local government units spend their tax money on visible public goods and services, such as fire protection and law enforcement. The results of this study have important public policy implications. From a public policy standpoint a very interesting extension to this paper would be to investigate whether Tiebout-type moves are dependent on household incomes. Do "rich" households react differently to variations in local public goods and taxes than "poorer" households?

In summary, the call to reduce government expenditures needs some modification. Households do not avoid higher taxed local government units, but households reveal a preference for wanting control over the type and level of spending.

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