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Intrametropolitan Decentralization: Overlapping Jurisdictions and Efficient Local Public Good Provision

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Abstract

A new methodological approach allows for an empirical test of the benefits of decentralizing the institutions of local government. Past research has been limited by the lack of variation in government structure within a country or region and the self-selection of areas that decentralize governments. This research overcomes these limitations by 1) examining the growth of special district governments in Colorado over the last 20 years and 2) adopting a spatial di□erence-in-di□erence estimator, which performs di□erence-in-di□erence estimation across space and time, to control for the self-selection of government structure. Specifically, a hedonic housing price framework estimates what impact the number of governments serving a home has on property values within the Denver-Boulder-Greeley CMSA. Results find negative impacts for forming special district governments. These impacts vary by functions decentralized and also the spatial characteristics of overlapping jurisdictions.

JEL Classification:
Keywords:..

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1 Introduction

Contemporary urban dwellers in the U.S. are now often governed by multiple local jurisdictions. In some U.S. states, the number of these local governments has grown substantially over the last two decades, ranging from a ten percent increase to a near 160% growth (Table 1). The most common of these new governments are special districts, created to provide specific services or functions and varying in size from less than a square mile to multiple counties. In addition, the number and types of these governments serving individual properties varies across a metropolitan area. This variation allows an empirical test of the impacts of institutional decentralization.[1]

This is contrasted with theoretical results from Hochman et al. (1995) who advocate for a centralized institutional structure of local governments:

".. decentralization requires an institutional system in which each local government supplies

summarizing relevant literature. Section 3 provides the empirical methodology for using a hedonic housing price approach to estimate the impacts of institutional decentralization. Section 4 discusses measurements of institutional decentralization and the spatial distribution of governments. Section

Three layers of government serve property A, two governments serve property B, and only the county government serves property C in the Overlapping Federalist Structure. Two governments serve all properties in the Nested Federalist Structure. These two spatial distributions contain the same number of governments per county, yet the number of governments serving a home and the relationships between overlapping governments di□ers.[3]

The growth of noncontiguous cities and special districts makes the Overlapping Federalist Struc-

ization in measuring the impacts of decentralization.[6] A number of papers provide cross-country or intra-country examinations of the impacts of a federalist structure. Iimi (2005), Akai and Sakata (2002), and Lin and Liu (2000) find positive impacts of decentralization on economic growth, while Davoodi and Zou (1998) and Zhang and Zou (1998) find negative impacts of decentralization on economic growth. A recent cross-country study by Arzaghi and Henderson (2005) finds that decentralization is positively influenced by economic growth, country size, and population. Baranky and Lockwood (2007

$$ln(P_h) = \alpha_1 X_h + \alpha_2 Z_h + \alpha_3 DC_h + \alpha_4 A_h + \sum_{g=1}^{G} \delta_{g,h} Expend_{g,h} + Y1_{g,h} + Y2_{g,h,t} + \varepsilon_P \quad (1)$$

Equation 1 incorporates two types of unobserved variables. $Y1_{g,h}$ represents unobserved variables that are static over time. Examples include any neighborhood characteristic not controlled by other variables such as proximity to schools, mountain views, or access to highways. Another variable, $Y2_{g,h,t}$, represents time-varying unobservables. Examples include the residential development of a neighborhood, nearby commercial development, or crime. Initially, OLS (Ordinary Least Squares) estimation will assume that government structure is exogenous and there is no concern about the self-selection of areas that institutionally decentralize local government. Therefore, neighborhood fixed effects can control for $Y1_{g,h}$ and $Y2_{g,h,t}$. The next section details an econometric technique, spatial difference-in-difference, to control for the endogeneity of communities that decentralize local government.

3.1 Spatial Difference-in-Difference

Communities structure government according to local preferences and changing residential development. Therefore, communities with institutional decentralization may be fundamentally different

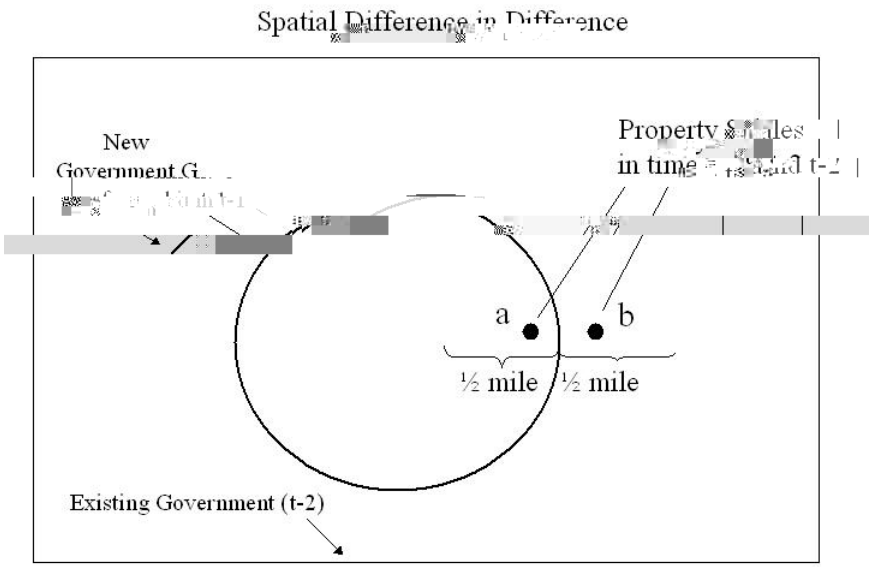

Figure 2: Spatial Di□erence-in-Di□erence

The econometric methodology for spatial di□erence-in-di□erence starts with Equation 1.

$$ln(P_h) = \alpha_1 X_h + \alpha_2 Z_h + \alpha_3 DC_h + \alpha_4 A_h + \sum_{g=1}^{G} \delta_{g,h} Expend_{g,h} + Y1_{g,h} + Y2_{g,h,t} + \varepsilon_P \quad (2)$$

Repeat sales di□erences out property characteristics (X_h) and $Y1_{g,h}$. Since these variables will not vary over time, they are equal to zero in Equation 3.[13] Z_h is not removed in Equation 3 because neighborhood characteristics may change over time.

$$\Delta_t ln(P_h) = \alpha_2 \Delta_t Z_h + \alpha_3 \Delta_t DC_h + \alpha_4 \Delta_t A_h + \sum_{g=1}^{G} \delta_{g,h} \Delta_t Expend_{g,h} + \Delta_t Y2_{g,h,t} + \Delta_t \varepsilon_{g,h} \quad (3)$$

Matching only establishments in close proximity, but on opposite sides of the border removes time-varying neighborhood characteristics ($\Delta_t Z_h$) and unobservables ($Y2_{g,h,t}$). Δ_g represents dif-

[13] In practice, some properties may be remodeled and therefore, X_h may change over time. Later discussion will address this concern.

ferencing across space or border matching for properties *a* and *b* in Figure 2. This results in Equation 4:

$$\Delta_g \Delta_t ln(P_h) = \Delta_t ln(P_{h=a}) - \Delta_t ln(P_{h=b}) = \tag{4}$$

$$\beta_1 \Delta_g \Delta_t DC_h + \beta_2 \Delta_g \Delta_t A_h + \beta_3 \Delta_g \Delta_t Expend_h + \Delta_g \Delta_t \ _h$$

In Equation 4, β_1, β_2, and β_3 represent the impacts of changes in institutional structure, government characteristics, and expenditures due to a new government. These coe□cients represent the impact of a new government on property value growth while controlling for pre-existing conditions regarding where a new government forms.

4 Measuring Government Structure

OLS and spatial di□erence-in-di□erence estimation require metrics that characterize the structure of local government in Colorado, and quantify institutional decentralization and the spatial distribution of governments. The structure of local government in the Denver-Boulder-Greeley CMSA is composed of counties, cities, school districts, and six classifications of special districts. While a county and a school district serve all properties, a property may be served by up to nine types of local government (a county, city, school district, and 6 types of special districts). In this context, full institutional decentralization would have nine governments serving a property and a fully centralized scenario would have only two governments serving a property.

The six functional classifications of special districts (SDs) are Recreation, Fire, Water, Sewer, Water-Sewer, or Metropolitan. Metropolitan special districts perform multiple functions and commonly provide police, recreation, water, sewer, and other services.[14] Special districts may be formed by residents, developers, or county governments and require fifty-percent approval of a□ected land owners for formation.[15]

[14] Other services for Metropolitan SDs include ambulance services, flood control, irrigation, medical, mosquito control, pest control, storm drainage, street, television, transportation, and weed control.

[15] State laws regarding formation of SDs and governance structure vary among states. See the Appendix for details on the formation process for special districts in Colorado.

Empirically, two variables represent institutional decentralization (DC_h) for properties in Equation 1. The first variable is a series of dummy variables for the number of governments serving

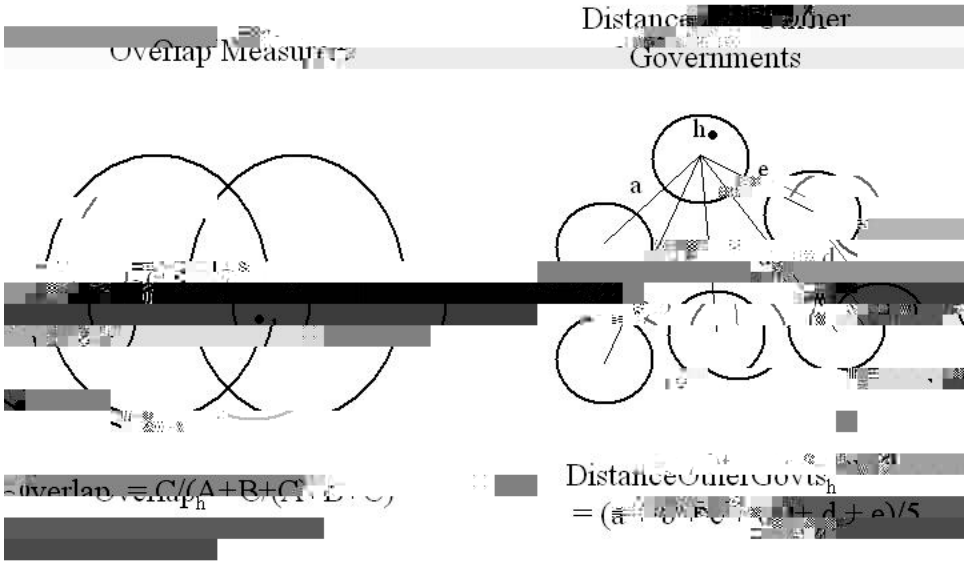

Figure 3: Two measures of jurisdictional spatial characteristics

$$IncomeDeviation_h = \sqrt{\frac{1}{(G-1)} \sum_{g \neq G} (MedianIncome_{g,h} - \overline{MedianIncome_h})^2} \qquad (6)$$

The final spatial variable is the physical square mileage of a jurisdiction (*GovtSize*). Ordinary Least Squares (OLS) Regressions will incorporate averaged variables for overlap, distance to other governments, and government size variables ($AvgOverlap_h$, $AvgDistanceOtherGovts_h$, and $AvgGovtSize_h$). These variables represent average values across each overlapping government type *g* serving property

Geographical Information Systems (GIS) maps allows assignment of properties to governments and the incorporation of the spatial relationship between governments. The accuracy of these maps is insured by Colorado State Statute 32-1-202, which requires all local governments to annually file an updated map of jurisdictional boundaries.

The scale of analysis, the Denver-Boulder-Greeley CMSA, is a metropolitan area that consists of the city/county of Denver, its bedroom communities, and nearby employment centers.[16] For all single family homes sold between 2002 and 2004 in the Boulder-Denver-Greeley CMSA, 14.4% are served by two governments; 38.9% by three; 18.3% by four; 23.1% by five; 4.7% by six; and 0.6% by seven or eight governments. There were 467 special districts (SD), 34 school districts, 69 cities, and 8 counties in the Denver-Boulder-Greeley CMSA in 2004.[17]

Local government structure within an urban area is influenced by several trends. As shown in the visualization of the distribution of governments in the Denver-Boulder-Greeley CMSA in Appendix Figure 4, there is a dichotomy in urban governance. Central Denver and outer suburban areas in the Denver-Boulder-Greeley CMSA contain relatively few governments, while inner suburban communities to the north, west, and south of Denver contain many governments. The fact that certain areas contain clusters of more centralized or more decentralized government structures indicates heterogeneity in benefits from decentralization within an urban area. Inner suburban residents likely benefit from a highly decentralized structure while central city and outer suburban residents benefit from a more centralized structure.

The property data is from each of the eight Denver-Boulder-Greeley CMSA county assessor's property records and compiled by a private company, Property Database Center.[18] The data for this research involves single-family homes sold between 2002 and 2004 in the Denver-Boulder-Greeley CMSA. Properties greater than 5 acres are excluded as ranch or agricultural properties. Also, all property sales transactions that were not arms length or involved a monetary transaction less than $10,000 are excluded as property transfers or improperly recorded transactions. This

research also removes properties with sales prices of more than $1,000,000 and those containing no bathrooms. Census (2000a) geospatial data provides information about parks and Census block group boundaries. Denver, Boulder, the Denver Tech Center, and Golden are designated commercial centers and property characteristics include distance to the closest commercial center. Additionally, previously recorded sales transactions will allow later estimation to incorporate the change in prices between repeat sales of a home. The assessor's offices for the metropolitan area counties provides previous sales transactions consistently back to 1987. Table 2 provides a detailed explanation of all variables and their data source.

In order to determine the expenditures per housing unit for a jurisdiction, a government's total expenditures in a property's year of sale is divided by the estimated number of housing units within a jurisdiction.[19] The number of housing units in a jurisdiction is based on 2000 U.S. Census block level data. Estimates for jurisdictions that are not coterminous with census blocks are constructed by proportionally assigning housing unit counts to jurisdictions based on land area overlap between a census block and the government's jurisdiction.

Table 3 provides summary data for property characteristics, taxes, and expenditures by government type. Twenty percent of all properties sold between 2002 and 2004 are in a recreation SD, 51% in a fire SD, 32% in a SD that provides water or sewer, 24% in a metropolitan SD, and 70% in a city government. Table 3 highlights the breakdown of expenditures by Special Districts, County, Cities, and School Districts. For the subset of single-family homes served by special districts, total special district expenditures per home averaged approximately 25% of a property's total governmental expenditures.

Data Variables	Description
Dependent Variables	*Source: County Assessor's Data*
Sales price	Transacted sales price for single family homes sold between 2002 and 2004.
Previous Sales Price	Any previous transacted sales price between 1987 and 2002
Independent Variables	
Property Variables X_h	*Source: County Assessor's Data, CO Dept of Education, and author's calculations.*
Lot Size (acres)	Size of a housing unit's parcel
Baths	Number of Baths (0.5 increments)
Bedrooms	Number of Bedrooms
Living Area	Square feet of a building's living space

in property values. These results appear somewhat contradictory, but indicate that impacts of institutional decentralization are influenced by the distribution of expenditures between overlapping governments. The provision of recreation and fire in cities or special districts negatively impacts property values and functions classified as police and other positively impact property values.[23] Providing multiple functions in an additional government creates a positive impact. Spatial variables in Column 4 find that governments that are further away from other governments of the same type have a negative impact on property values.

The expenditure by layer of government provides impacts for the fiscal decentralization that accompanies institutional decentralization. Following Oates (1969) and Brueckner (1979), the co-

this problem with estimation results for the spatial di□erence-in-di□erence methodology.

Single Family Homes within 1/2 mile of the border of a new government	New Government		No New Government	
	Mean	Std Dev	Mean	Std Dev
Previous Sales Price	202,948	*114,655*	169,108	*82,002*
Year of Previous Sales	1995.1	*4.2*	1995.7	*3.9*
Lot Size (acres)	0.33	*0.36*	0.33	*0.32*

adopt these fixed effects.

6.1 Spatial Difference-in-Difference Results

Table 6 provides spatial difference-in-difference estimation results. Regression coefficients on *in New Govt* represent the percentage of total growth in housing prices due to a new government. Other variables test the impact of a new government's expenditures, functions, or spatial characteristics on housing prices. By differencing across space and time, all variables apply to the new government and are relative to existing governments. Results are robust to the specifications in Table 6 for border distances of 1/3 or 2/3 of a mile. Smaller distances eliminated too many new jurisdictions and larger distances provide weaker controls for unobservables.

Column one finds that being in a new government (*in New Govt*) decreases the amount of property value change by 2.6%. The negative impact of forming a new government is surprising given that Colorado state laws dictates a 50% approval by affected landowners for the formation of any special district. The negative impact under majority approval highlights that the laws for forming new governments in Colorado may hurt residents. Given that this methodology controls for all locational attributes, results are generalizable in that a simple majority approval does not limit the formation of new governments to only beneficial institutions for residents.

A number of variables differ from earlier regression results and highlight the self-selection of communities biasing OLS estimates. Contrary to earlier results, functional dummies find positive benefits for the institutional decentralization of recreation and fire. The coefficients in regression four represent that the decentralization of these functions contributed to 7.3% and 5.9% of the total change in property values respectively. Another issue highlighted by the impacts of functions decentralized, and discussed by Marlow (1995) and Nunn and Schoedel (1997) is the limited oversight and Leviathan potential of special districts. The negative impacts of water and sewer supports this issue. These functions are infrastructure based and typically have higher debt financing and lower visibility than other government functions.

Spatial variable coefficients find that the average distance from a new government to its nearest five neighborhoods within government type negatively impacts property value change by 0.8% per

Dep Var: ln(Sales Price) - ln(Previous Sales Price)	(1)	(2)	(3)	(4)
in New Govt	-0.0258**	-0.0531***	0.0245	
	(0.0106)	(0.0185)	(0.0487)	
New Recreation SD Expenditures($000s)	0.0114	0.0397***	0.0499***	0.0627***
	(0.0071)	(0.0106)	(0.0128)	(0.0154)
New Fire SD Expenditures($000s)	0.0065	-0.0035	0.0036	0.0122
	(0.0046)	(0.0087)	(0.0107)	(0.0100)
New Water SD Expenditures($000s)	-0.0010	-0.0123	-0.0131	-0.0009
	(0.0099)	(0.0099)	(0.0101)	(0.0107)
New Sewer SD Expenditures($000s)	0.0041	-0.0218***	-0.0205**	0.0356***
	(0.0099)	(0.0089)	(0.0086)	(0.0134)
New Water-Sewer SD Expenditures($000s)	0.0027	-0.0321***	-0.0321***	-0.0104
	(0.0103)	(0.0105)	(0.0112)	(0.0125)
New Metro SD Expenditures($000s)	0.0039	0.0029	-0.0018	-0.0123
	(0.0093)	(0.0065)	(0.0119)	(0.0118)
New Govt provides Recreation		0.0744***	0.0684***	0.0730***
		(0.0208)	(0.0218)	(0.0224)
New Govt provides Fire		0.0663***	0.0606***	0.0587***
		(0.0124)	(0.0121)	(0.0122)
New Govt provides Water or Sewer		-0.0619***	-0.0457***	-0.0547**
		(0.0253)	(0.0271)	(0.0275)
New Govt provides Police		0.0142	-0.0247	-0.0117
		(0.0283)	(0.0395)	(0.0390)
New Govt provides Other Functions		-0.0141	-0.0126	-0.0100
		(0.0283)	(0.0243)	(0.0254)
New Govt provides Multiple Functions		0.0011	0.0018	-0.0007
		(0.0316)	(0.0318)	(0.0323)
New Govt Overlap			-0.0901**	-0.1168***
			(0.0449)	(0.0438)
New Govt Distance to Other Govts (miles)			-0.0085*	-0.0081**
			(0.0045)	(0.0041)
New Govt Income Deviation ($000s)			0.0010***	0.0010***
			(0.0003)	(0.0003)
New Govt Size (square miles)			0.0913	0.1254
			(0.3240)	(0.2879)
New Govt is 3rd Govt				0.0629
				(0.0531)
New Govt is 4th Govt				0.0208
				(0.0424)
New Govt is 5th Govt				0.0434
				(0.0451)
New Govt is 6th Govt				0.0354
				(0.0484)
New Govt is 7th Govt				-0.0862*
				(0.0484)
Year and Quarter of Property Sale Fixed E□ects	Yes	Yes	Yes	Yes
Previous Price Quintile Fixed E□ects	Yes	Yes	Yes	Yes
1/2 mile border segment fixed e□ects	Yes	Yes	Yes	Yes
R-squared	0.61	0.61	0.61	0.61
N	11,162	11,162	11,162	11,162

To account for heteroscedasticity, all regressions include White (1980) robust standard errors.

mile increase. This is consistent with less horizontal competition and greater productive ine□-ciency discussed in the Leviathan literature (see Zax (1989), Oates (1985), and Bates and Santerre (2006)). This literature highlights that the competition of governments for mobile residents limits overspending and ine□ciencies in governments. Table 6 shows that increasing how much a new government's jurisdiction overlaps existing governments by 10% generates a negative impact of 1.

property value change of $13,

7 Conclusions

Examining the spatial variation of local governments within a metropolitan area provides an unique test of institutional decentralization and allows for new methods to control for the endogeneity of local government structure. Overall results find a negative impact of institutional decentralization on property values. This result is influenced by the functions of new local governments, with recreation and fire entities benefiting properties the most. The analysis of spatial characteristics of jurisdictions shows that greater overlap between jurisdictions and further distance from other governments both negatively impact property values. Yet, greater income heterogeneity between overlapping governments positively impacts property values.

Results are generalizable in three ways. First, the overall negative impact of forming a special district merits concern about how state laws dictate the approval of new governments by residents. Second, results for the spatial characteristics of jurisdictions support the benefits of forming new governments within a Tiebout framework. Third, heterogeneity in benefits due to the function and spatial characteristics of governments show that the types of LPGs provided and the structure of existing governments influence the impacts of institutional decentralization.

Finally, the location of governments within the Denver-Boulder-Greeley CMSA highlight a dichotomy in urban governance between the highly decentralized inner suburban areas and the centralized central city and outer suburban areas. This pattern highlights that flexibility in altering local government structure may be beneficial for serving diverse residents and meeting LPG demand conditions within an urban area.

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governments in the provision of two local public goods in a metropolitan area. The model is based on a three stage decision process. First, an economic agent determines the structure of local government to provide LPGs. In this model, two local public goods can be provided either by creating a jurisdiction for each local public good (two single-purpose (SP) governments) or by structuring a single government to provide both LPGs (a multi-purpose (MP) government). Examples of SP governments include school districts or single function special districts (recreation, fire, water, or sewer). MP governments include cities or metropolitan special districts. Second, an economic agent determines the size of the jurisdiction, N_j given the structure of local government.[30] Finally, a representative household determines the levels of local public goods, z_i for $i = 1, 2$.

This three stage decision process is:

1. The type of local government structure is determined (MP or SP) by a representative household or government agent.
2. The size of a government's jurisdiction is chosen by a representative household or government agent.
3. A representative household decides on the level of each LPG provided in their jurisdiction.

9.1 Level of LPG

The solution to this model is based on backwards induction and first the level of LPGs is chosen by a representative household. The household, which represents the majority of households in a given jurisdiction of size N_j, chooses the level of two public goods given the structure of local government. A simplifying assumption is that all households in the majority of a government have identical tastes for a LPG. The level of z_i for $i = 1, 2$ under two SP governments and then for a single MP government provide results under di□ering amounts of institutional decentralization.

The first case with two SP governments begins with the utility maximization problem of a representative household in Equation 7. y represents a household's endowment, α_i is a cost parameter for a given LPG, and θ_i is a benefit parameter for a given LPG. F_i represents the fixed costs associated with the provision of LPG z_i. The cost of producing z_i is based on a convex cost structure

[30] Size (N_j) takes into account land area, population size; and assumes larger jurisdictions must include more heterogenous households than smaller jurisdictions.

which highlights the presence of an e□cient scale of producing a LPG. This cost structure takes into account di□erences in the scale of production for di□erent LPGs and the role of increasing costs of heterogeneity as a jurisdiction includes more households.[31]

approval by county o□cials. Taking the utility specified in Equation 7, the agent optimizes the following problem for N_i, given a SP or MP government structure. For the SP governments, the agent solves Equation 11

$$Max_{N_i} \quad U = y - \alpha_1 N_1(z_1^{SP}) - \frac{F_1}{N_1} + \theta_1 ln(\frac{\theta_1}{\alpha_1 N_1})$$

$$U(MP) = y - \theta_1 - \theta_2 - \frac{F_3}{N_3} + \theta_1 ln(\theta_1) + \theta_2 ln(\theta_2) - \theta_1 ln(\alpha_1 N_3) - \theta_2 ln(\alpha_2 N_3) \quad (16)$$

The decision rule, Equation 17, is based on the difference between Equation 15 and Equation 16 and highlights the factors that influence the tradeoffs between structures.

$$\Delta U = U(MP) - U(SP) = \theta_1[ln(\frac{F_1}{\theta_1}) - ln(\frac{F_3}{\theta_1 + \theta_2})] \quad (17)$$

$$+ \theta_2[ln(\frac{F_2}{\theta_2}) - ln(\frac{F_3}{\theta_1 + \theta_2})]$$

The resulting interpretation is that if Equation 17 is positive, the MP government structure is preferred, and if this equation is negative, the SP government would be the better structure.

Proposition 9.3.1 *Lower fixed costs in combining functions within one government increases the benefits of a MP government structure.*

$$\frac{\partial \Delta U}{\partial F_3} = -[\frac{\theta_1 + \theta_2}{F_3}] < 0 \quad (18)$$

Proposition 9.3.2 *Increasing the difference in the marginal benefits* ($|\theta_1 - \theta_2|$) *between the two LPGs provided in the metropolitan area increases the benefits of more governments.*

Proof: Let $\theta_1 = 1$, $\alpha_1 = 1$, $\alpha_2 = 1$, and $F_3 > F_2$.

$$\frac{\partial \Delta U}{\partial \theta_2} = -[ln(F_2) - ln(\theta_2) + ln(1 + \theta_2) - ln(F_3)] \rightarrow ln(F_2) - ln(F_3) < 0 \text{ as } \theta_2 \rightarrow \infty \quad (19)$$

By symmetry, this holds for changes in θ_1, and if $\theta_2 = 1$ and $F_3 > F_1$.

Results from this theoretical model demonstrate that fixed costs and heterogeneity in benefits from different LPGs impact when decentralization is beneficial to residents. The benefits of decentralization in this model are due to the fundamental tradeoff between economies of scope in providing multiple LPGs in one government and allowing LPGs to be provided in differently scaled jurisdictions.

Dep Var = Ln(Sales Price)	(1)	(2)	(3)	(4)
acres	0.1113***	0.1131***	0.1119***	0.1122***
	(0.0026)	(0.0026)	(0.0026)	(0.0026
bath	0.0257***	0.0257***	0.0255***	0.0256***
	(0.0009)	(0.0009)	(0.0009)	(0.0009)
sqft (000s)	0.2713**	0.2745***	0.2746***	0.2747***
	(0.0029)	(0.0029)	(0.0029)	(0.0029)
sqft squared (000s)	-0.0200***	-0.0207***	-0.0211***	-0.0212***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)
age	-0.0035***	-0.0035***	-0.0034***	-0.0034***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
age squared (00s)	0.0316***	0.0312***	0.0299***	0.0315***
	(0.0037)	(0.0037)	(0.0037)	(0.0038)
age cubed (00000s)	-0.0911***	-0.0900***	-0.0841***	-0.0842***
	(0.0213)	(0.0212)	(0.0213)	(0.0213)
Garage Dummy	0.0140***	0.0142***	0.0142***	0.0141***
	(0.0017)	(0.0017)	(0.0017)	(0.0017)
Basement Dummy	0.0899***	0.0901***	0.0898***	0.0899***
	(0.0014)	(0.0014)	(0.0014)	(0.0014)
ForcedAir Heat Dummy	-0.0095***	-0.0095***	-0.0093***	-0.0092***
	(0.0021)	(0.0021)	(0.0021)	(0.0020)
Fireplace Dummy	0.0191***	0.0190***	0.0189***	0.0188***
	(0.0011)	(0.0011)	(0.0011)	(0.0011)
Ln(DistComm) (miles)	-0.0195**	-0.0234***	-0.0215***	-0.0225***
	(0.0062)	(0.0065)	(0.0063)	(0.0064)
Distance to Park (miles)	-0.0042***	-0.0045***	-0.0054***	-0.0052***
	(0.0014)	(0.0014)	(0.0014)	(0.0013)
CSAP school test scores Advanced (%)	0.5147***	0.5109***	0.5289***	0.5189***
	(0.1441)	(0.1443)	(0.1442)	(0.1441)
CSAP school test scores Satisfactory (%)	0.3346***	0.3216***	0.3172***	0.3101***
	(0.0995)	(0.0.994)	(0.0996)	(0.0999)

Absolute value of standard deviation in parentheses; * < 0.1 ** < 0.05 *** < 0.01
All regressions include White (1980) robust standard errors
Bedrooms are excluded from regressions because other property variables make it insignificant

Table 8: Property Variables, School Test Scores for Table 4

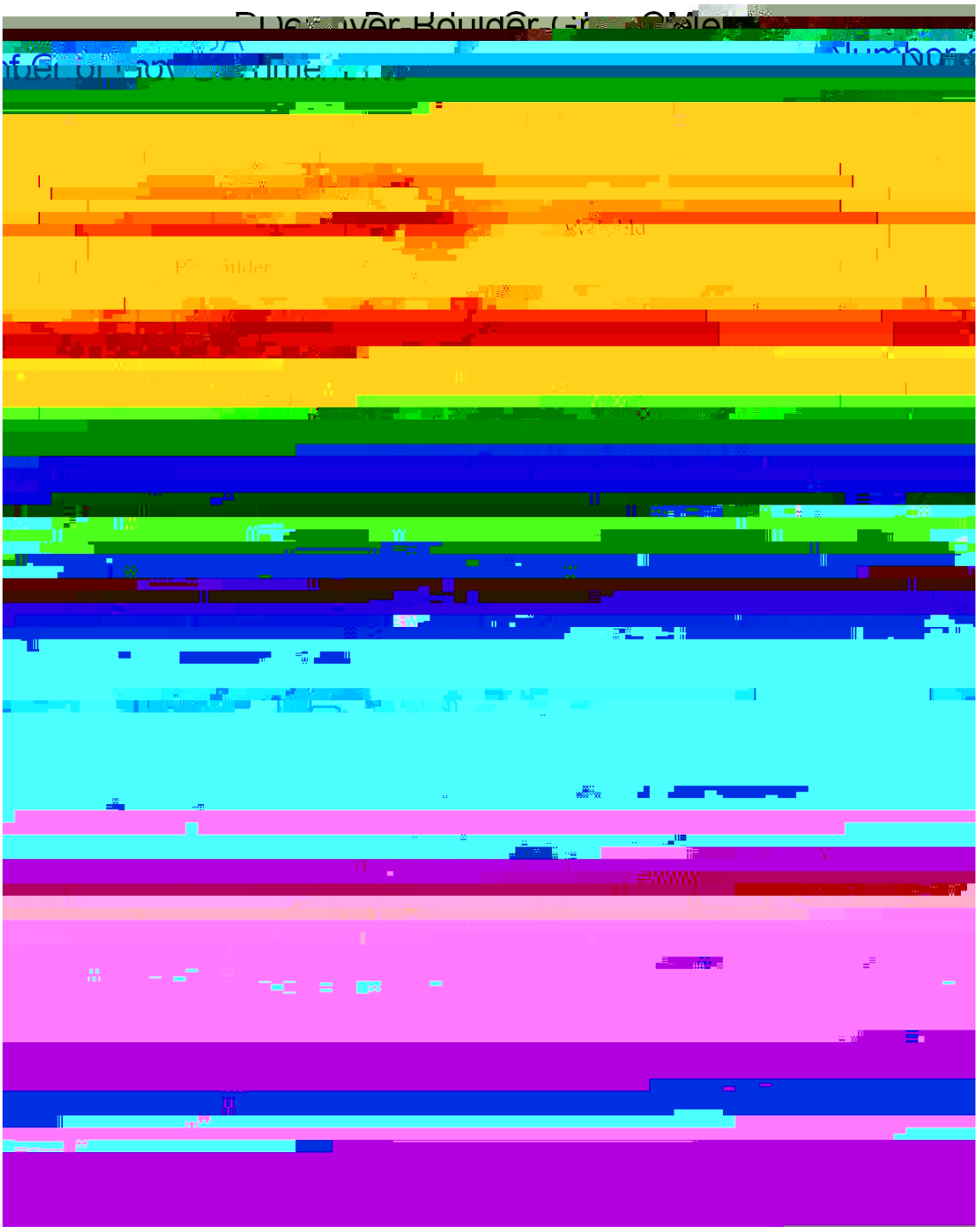

Figure 4: Denver-Boulder-Greeley CMSA: Number of Governments