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Local Government Border Congruence and the Fiscal Commons: Evidence from Ohio School Districts

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Abstract: School district and municipal borders do not always align. Noncongruent borders can create a fiscal commons problem where new development does not entirely "pay its way." In response, frustrated citizens often respond by voting for lower school spending. Using GIS data on Ohio school districts, the degree of noncongruence between school district and municipal territory is calculated. The results indicate that school districts with noncongruent borders generate less revenue from local sources and that these effects seem to increase with the degree of noncongruence. The findings are robust between OLS and treatment effects regression.

1. Introduction

There exists a rich literature studying the normative and positive implications of overlapping jurisdictional boundaries of public governance structures in economics, political science, regional science, and public administration (Isard, 1956; Ostrom et al., 1961; Turnbull and Djoundourian, 1994; Oates, 1999; Feiock, 2007). In the United States, one of the most prolific examples of overlapping jurisdictions at the same hierarchical level is found in the separation of local government borders from those of the school district (Campbell et al., 1965). In his 2009 book on the economic evolution of American school districts, Fischel estimates that less than one-quarter of all U.S. cities over 50,000 in population had borders congruent with a local school district.

An important implication of noncongruence is that each local government and school district will have a different median voter.[1] If the policies of municipalities had no spillovers on school districts, then this would not be problematic. However, the actions of municipalities affect school districts by shaping the structure and composition of residential and commercial development (Fischel, 2001). Having different median voters creates a potential moral hazard problem as the median voter in a noncongruent municipality does not face the full fiscal cost of zoning decisions.[2]

To illustrate the potential problem, consider the decision to rezone a parcel of agricultural land for residential purposes. In the case where municipal borders were congruent with the local school district, the median voter would balance the fiscal benefits of additional development against the fiscal costs—including higher school district expenditures associated with the new development. With border congruency, the median voter has the incentive to consider *all* the costs associated with zoning decisions, including higher school district expenditures. Should the

[1] The median voter model is the workhorse empirical model employed to explain government behavior at the local level (Turnbull and Mitias, 1999; Turnbull and Djoundourian, 1994).

[2] An expanded description and graphic model of why the median voter in the zoning authority does not face the full fiscal cost of zoning decisions can be found in Ross et al. (2014).

parcel of agricultural land lie in a city that shares a school district with seven other municipalities, however, the median voter will continue to factor in all the benefits of rezoning to residential use but face only a fraction (one-seventh) of the cost of educating the children that will live in the new development.

While school district-municipality border noncongruence implies increased total school district spending due to the incentive to "overzone" residential, the implications on spending per pupil are less clear. This is especially true in states like Ohio where nearly half of school district spending comes from local sources.[3] In Ohio, increased local revenue to schools is not automatic when population or property values increase, as local revenue increases must be voted on by residents of the school district. Individuals unhappy with higher school costs due to rampant development in a neighboring municipality with which they share a school district have the ability to reject additional local spending on schools by voting down school levies for new school construction and ongoing spending. A May 2003 editorial by the *Columbus Dispatch* on the Pickerington (OH) school district provides direct evidence of such punishment in action. A portion of the city of Columbus lies within the Pickerington School District, which is also comprised of portions of several smaller governments. From 1990 to 2000, the number of Columbus residents in Pickerington schools grew tenfold due to rapid residential development resulting from high-density zoning in the Columbus portion of Pickerington School District. In response, the voters of the Pickerington School District rejected multiple school levies that would have increased spending and helped to relieve school overcrowding.

In this article I investigate the impact of congruency between municipality and school district borders on local revenue generation. My reasoning for choosing local revenue per capita is straightforward following from the Pickerington example. In that case noncongruency led to local voters rejecting additional local revenues for schools, which combined with increased residential development led to less local revenue per pupil. I use Geographic Information Systems (GIS) data from Ohio school districts and municipalities in the year 2000 to identify congruent and noncongruent school district borders and measure the degree of fragmentation among different municipalities.[4] The influence of these unique measures of municipal-school border congruency on local revenue per-pupil is estimated using OLS and a two-stage treatment effect regression approach. For local revenue per pupil, I am able to reject the null hypothesis that noncongruent borders have no effect. This finding is robust to alternative specifications and self-selection treatment effects.

2. Literature review

Within the United States, school districts have received a great deal of attention in the literature on overlapping government boundaries at the same hierarchical level (e.g., see Fischel (2009)).[5] This is in no small part due to the large number of public school district consolidations that reduced the total number of school districts from the hundreds-of-thousands to the tens-of-thousands during the 20th century (Kenny and Schmidt, 1994). Though consolidation and congruency are different concepts, the two subjects are closely related because consolidation can either increase or decrease congruency. In the school consolidation paper most closely related to mine, Brasington (2004) looks at the impact of local government structure on housing prices. In a hedonic regression, he finds that consolidation (measured as a dummy variable if communities share a school district) was associated with a 3.5 percent decline in housing values, presumably due to increased heterogeneity in the consolidated district (i.e., more voters with preferences farther away from the median).[6] It is important to note, however, that Brasington's work does not directly provide evidence on border congruency since consolidation can either increase or decrease border congruence depending on the starting structure of local communities.

In addition to the public finance literature on consolidation, border congruency is related to the public administration literature on polycentric order and

[3] Ohio is one of only two states that let school districts levy an income tax in addition to the property tax (Hall and Ross, 2010).

[4] This approach to measuring border congruence was previously employed in Ross et al. (2014).

[5] Please note that while the literature on fiscal federalism (Oates, 1999; Stansel, 2005) also deals with overlapping jurisdictions, the main concern in that literature is with the proper vertical level of provision. Dowding and Mergoupis (2003) provide a helpful discussion of the distinction between the fiscal federalism literature and the literature on overlapping jurisdictions at the same hierarchical level.

[6] This finding is consistent with school district residents needing to be compensated through lower housing prices in order to accept greater heterogeneity in the public provision of schooling. In addition, consolidated school districts tend to have larger and larger schools with lower performance on test scores, which depresses property values (Brasington, 1997). For more on scale economies in education, see Lewis and Chakraborty (1996).

overlapping jurisdictions at the same hierarchical level.[7] Polycentrism deals more broadly with the notion of how systems of public administration should be coordinated within a given region, typically a metropolitan area. Ostrom et al. (1961, p. 836) bring up the issue of border congruency with respect to jurisdictional issues surrounding the issue of political community:

> An ideal solution, assuming criteria of responsibility and accountability consonant with democratic theory, would require that these three boundaries be coterminous. Where in fact the boundary conditions differ, scale problems arise....Nevertheless, the statement that a government is "too large (or too small) to deal with a problem" often overlooks the possibility that the scale of the public and the political community need not coincide with that of the formal boundaries of a public organization...It would be a mistake to conclude that public organizations are of an inappropriate size until the informal mechanisms, which might permit larger or smaller political communities, are investigated.

A monocentric system, in this context, would be one in which a metropolitan area coordinates all public services through a single public agency. A polycentric one would likely have more local governments or other similar special districts, as well as complicated and overlapping boundaries. The literature on polycentrism provides an explanation why overlapping jurisdictions and the resulting noncongruency of borders may not be inefficient when consideration of all regional services is considered.

Finally, the only paper to directly measure border congruency among local governments is Ross et al. (2014). Using data on Ohio school districts and municipalities, the authors measure the extent to which school district borders are congruent with a local municipality. They argue that the higher residential development in noncongruent school districts is likely to lead to school overcrowding as voters refuse to pay for new school construction for what they see as excessive development. In that respect, the motivation of Ross et al. (2014) is identical to the one in this paper, except their concern is with increased students leading to higher class sizes instead of reduced local revenue. They find that school districts where the borders are noncongruent have higher class sizes, *ceteris paribus*, suggesting that noncongruence might matter for school district revenue, since higher class sizes are typically associated with attempting to keep school costs low. Building off their work, I will look at the impact of border noncongruence between Ohio school districts and municipalities on their ability to raise local revenue per pupil.

3. Ohio school districts and congruency measurement

This paper draws on cross-sectional data from Ohio K-12 school districts for the year 2000. As noted in Ross et al. (2014), school district borders in Ohio have changed very little since the mid-1960s due to concerns surrounding racial segregation and white flight.[8] School borders determined and fixed decades ago can likely be treated as exogenous. In addition, many important socioeconomic variables necessary as controls are only available from the 2000 Census. Using GIS data from the 2000 Census on both municipalities and school districts, the extent to which a school district is divided among municipalities according to area of overlap was calculated. This was done in the manner of an inverse Herfindahl-Hirschman Index (*HHI*), which for school district *i* is

$$HHI_i = 1 - \left(\sum_{j=1}^{n} \frac{A_{ij}^2}{10{,}000}\right). \quad (1)$$

where A_{ij} is the percentage of land area in school district i from municipality j. Perfectly congruent boundaries will take the value of zero, while noncongruent districts will be bound between one and zero.

For illustration, Figure 1 provides a visual of the Black River school district (*HHI*=.795) in a thick bold line, as well as the five adjacent municipalities that supply the population in a thinner black line. This calculation has the advantage over simple dummy variable approaches used in consolidation studies because it measures the degree of noncongruence rather than noncongruency itself. For example, a school district comprised of two whole municipalities is clearly different than a school district that is mostly comprised of one municipality but has a small portion serving another municipality. In the former case, the *HHI* score would be 0.5 and in the latter case it would be close to zero, depending on how little area came from another municipality. Therefore the lower the *HHI* score the more congruent the school district is with a single municipality.[9]

[7] Across disciplines, polycentrism is also sometimes described with the terms "fragmentation" or "decentralization."

[8] Bogart and Cromwell (1997) provide additional discussion regarding the time-invariant nature of Ohio school district borders.

[9] No school districts in Ohio lie entirely inside a municipality. If this were the case, a noncongruent school district would have an *HHI* score of zero since all of its area comes from one municipality.

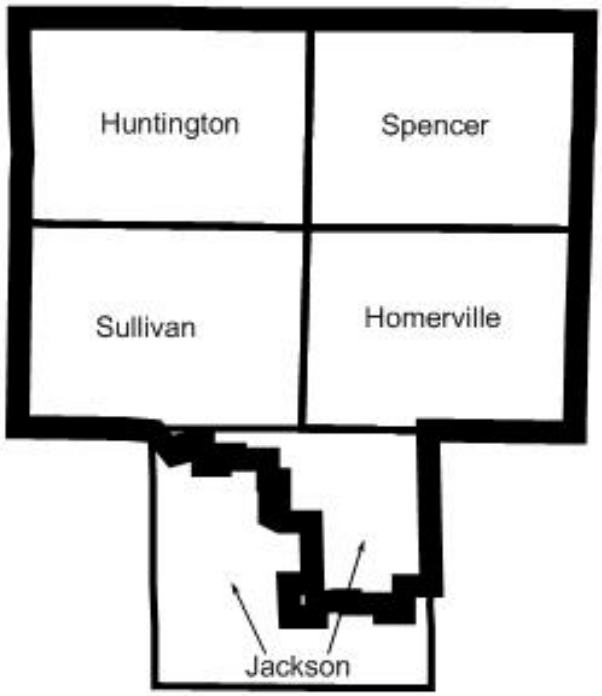

Figure 1. Noncongruent Black River school district (thick bold) with local governments (thin bold)

While Ohio has 611 school districts, my analysis excludes four districts as being unrepresentative. Three of the districts serve a handful of students living year-round on islands in Lake Erie and the fourth school district is a joint Ohio-Indiana school district and thus has a unique financing structure. Of the 607 districts remaining, 126 are congruent and 481 are noncongruent of various degrees. In terms of demographics such as student enrollment, income, income inequality, population, and racial diversity there is little difference on average between congruent and noncongruent school districts.[10]

4. Empirical Approach

The empirical model is motivated by the intention to capture the effect of non-congruency on local revenue generation. The basic model specification is:

$$\ln(\text{Local Revenue PP}_i) = \gamma_1 \text{NonCongruent}_i + \delta_1 HHI_i + X_i\beta_1 + \varepsilon_i \quad (2)$$

In this equation the variables of interest will be the ones indicating noncongruent school districts. These variables will include a noncongruent binary indicator that takes the null value when the borders align, as well as an interaction variable with the *HHI* score and non-congruency indicator. The interaction effect would indicate that degree of noncongruence matters, in addition to just being noncongruent. It should be noted that the hypothesis testing for the effect of non-congruency will require a test of joint significance of both the non-congruent indicator and its interaction effect with *HHI*, the degree of non-congruency.[11]

The remaining control variables represented by X_i and Z_i in equation (2) are largely motivated by the intuition that the dependent variables are determined by voter preferences, voter wealth, and other social or institutional factors. This motivation is consistent with the median voter model and how it has been employed in the economics of education literature. Table 1 provides a full list of variables employed in this paper, as well as full definitions and sources.

[10] For more on this point, see Ross et al. (2014), Table 1.

[11] For this marginal effect, an F-test will be conducted on the null hypothesis that for a given HHI score, $\gamma + (\text{HHI} \cdot \delta) = 0$.

Table 1. Variable descriptions and sources.

Variable	Description	Source
Local Revenue PP	Local revenue per pupil	1
NonCongruent	Dummy where null value indicates congruent borders (HHI = 0), else 1 ($HHI > 0$)	2
HHI	$HHI_i = 1 - \left(\sum_{j=1}^{n} \frac{A_{ij}}{10{,}000}\right)$, where A_{ij} is the % of school district i's area from municipality j.	2
State Revenue PP	State revenue per pupil	1
Federal Revenue PP	Federal revenue per pupil	1
Property Valuation PP	Total taxable value of real property divided by 2000 school year average daily membership	1
Lunch	Proportion of students from households eligible to receive free or reduced price lunches	1
Owner Occupied	Proportion of housing units in the school district that are classified as owner occupied	4
Pages	Number of pages in school district collective bargaining agreement with teachers	3
Racial Fractionalization	Herfindahl-Hirschman Index of racial group composition across school district population	4
Income Inequality	Ratio of mean-to-median household income in school district	1
Percent Private	Proportion of district children enrolled in private schools	4
Square Miles	Land area in square miles (tens).	2
Population	Population (tens thousands).	4

Note: (1) Ohio Department of Education; (2) Calculated using 2000 U.S. Census GIS data; (3) Ohio Department of Administrative Services; (4) 2000 U.S. Census.

The inclusion of *Racial Fractionalization* and *Income Inequality* is motivated by research on ethnic, racial, and income divisions and their effect on support for local publicly-provided goods (Alesina et al., 1999; Hall and Leeson, 2010). Competition from private schools (*Percent Private*) is generally thought to lower local revenue per pupil as the increased availability of private substitutes will lower support for local public schools (Flowers, 1975; Denzau and Grier, 1984; Hall, 2007). The sign on this variable is ambiguous, however, since within some range families choosing private school will not affect local public school demand but will reduce the number of students, increasing local revenue per pupil. The sign on *Owner Occupied* is also theoretically ambiguous, as property owners could have higher demand for spending per pupil (Ladd and Murray, 2001) or lower demand because of "renter's illusion" as discussed by Denzau and Grier (1984). *Pages* is simply the number of pages in the district's collective bargaining agreement with its teachers union. This is a proxy variable for the strength of the local teachers union which should positively influence local revenue per pupil (Duplantis et al., 1995). Beyond the basic specification, *State Revenue PP* and *Federal Revenue PP* are motivated by a large literature interested in uncovering intergovernmental transfers that experience a "flypaper effect" of sticking to their intended use, rather than causing substitution effects in the form of reduced local spending (Stevens and Mason, 1996; Card and Payne, 2002). Summary statistics for all dependent and independent variables are provided in Table 2.

Table 2. Means and standard deviations for school district level data.

Variable	Mean	Std. Dev.	Min	Max
Local Revenue PP	3,178	1,706	694	14,751
NonCongruent	0.79	0.41	0.00	1.00
HHI	0.70	0.23	0.07	1.00
State Revenue PP	3,044	893	781	5,936
Federal Revenue PP	324	208	43	1375
Property Valuation PP	108,049	59,274	24,632	682,689
Lunch	0.21	0.14	0.00	0.81
Owner Occupied	0.93	0.04	0.36	0.98
Pages	76.84	34.24	1.00	304
Racial Fractionalization	0.10	0.11	0.01	0.57
Income Inequality	1.21	0.10	0.99	1.85
Percent Private	0.10	0.08	0.00	0.52
Square Miles	7.26	7.27	0.10	64.00
Population	1.87	3.64	0.14	48.07

Note: Means and standard deviations for full sample of 607 school districts.

In addition to the OLS estimates of equation (2), the possibility of endogeneity and self-selection bias will be considered in the empirical analysis. Noncongruent school districts are sometimes, though not always, the result of historical consolidations of smaller districts for the purpose of increasing revenues and capturing the economies of scale necessary to support school buildings in a system of grades. This likely caused these school districts to be much larger geographically than their contemporary counterparts, as they needed to cover more parcels of land that represented both students and taxable property. These biases would likely direct the parameter estimates closer to zero. It is with this motivation that we employ both land area and population as instruments in the following system of equations:

$$y_i = X_i\beta + \gamma_1 NonCongruent_i + u_i \quad (3)$$

$$NonCongruent_i^* = \delta_1 Population_i + \delta_2 Area_i + v_i \quad (4)$$

where *NonCongruent** is an unobserved latent variable for the observed congruency status of the school district and *y* represents the dependent variable from equation (1). *HHI* is excluded because it is conditional on *NonCongruent*=1, so it would behave as an endogenous interaction term, and would therefore require a separate set of instruments. A probit estimation of (4) produces the instruments necessary for the endogenous treatment of *NonCongruent* for the second-stage model estimating equation of

$$\mathrm{E}[y_i|NonCongruent_i] = X_i\beta + \gamma_1 NonCongruent_i + \rho\sigma\lambda_i \quad (5)$$

In equation (5), λ_i is the familiar hazard function also derived from the first-stage probit estimation of equation (5), so that $\lambda_i = \frac{\varphi(w_i\delta)}{\Phi(w_i\delta)}$ for districts that are noncongruent and $\lambda_i = \frac{-\varphi(w_i\delta)}{[1-\Phi(w_i\delta)]}]$ for congruent, where φ and Φ represent the probability and cumulative density functions, respectively.

5. Empirical results

Columns A to C of Table 3 provide OLS estimates of the model in equation (2) with alternative restrictions imposed on the variable choices. The dependent variable is the natural log of *Local Revenue PP*. Column A includes only the noncongruent dummy and the *HHI* score as control variables, while column B adds variables related to the wealth of the school district. The full model is presented in Column C, and will henceforth be referred to as the "baseline" model for local revenue. In all of the specifications, the noncongruency indicator is statistically significant and negative, as expected. Based on the estimates in column C, a school that went from congruent (*NonCongruent* =0, *HHI*=0) to noncongruent with an *HHI* score of 0.465 would be associated with

a statistically significant -0.121 percent change in local revenues per pupil.[12] A change from a congruent school district to one with an HHI score of 0.926, one standard deviation above the sample's mean HHI, would only result in a change in local revenue per pupil by -0.175 percent, although it is statistically significant at the one percent level. These two point estimates represent about one-fourth to one-third of a standard deviation in the natural log of per pupil local revenue, which seems qualitatively small relative to the dramatic change in congruency status.

Table 3. OLS estimates of border noncongruence on ln (Local Revenue PP)

	A		B		C	
NonCongruent	-0.389	***	-0.120	***	-0.067	**
	(0.090)		(0.035)		(0.029)	
HHI	-0.510	***	-0.217	***	-0.117	**
	(0.104)		(0.055)		(0.046)	
ln (Property Valuation PP)			1.004	***	0.947	***
			(0.027)		(0.039)	
Lunch			-0.021		-0.228	**
			(0.096)		(0.095)	
Owner Occupied					0.439	**
					(0.172)	
Pages					0.000	
					(0.000)	
Racial Fractionalization					0.698	***
					(0.075)	
Income Inequality					-0.169	
					(0.109)	
Percent Private					0.058	
					(0.108)	
Intercept	8.604	***	-3.340	***	-3.062	***
	(0.164)		(0.316)		(0.494)	
Marginal Effect from Congruent to NonCongruent						
HHI = 0.465	-0.626	***	-0.221	***	-0.121	**
HHI = 0.700	-0.746	***	-0.272	***	-0.149	***
HHI = 0.926	-0.861	***	-0.321	***	-0.175	***
R^2	0.056		0.833		0.856	

Note: Sample size is 607 Ohio school districts for the year 2000. Standard errors are in parentheses.
Statistical significance indicated at 0.01 (***), 0.05 (**), and 0.10 (*) levels.
For marginal effects, statistical significance is determined by a joint F-test for NonCongruent+HHI*γ=0.

Table 4 uses the same model specifications as Table 4, but with *State Revenue PP* and *Federal Revenue PP* included to control for the possible flypaper effect of intergovernmental aid on local revenue. Substantively the results in Column C are not much different from those found in the counterpart specifications of Table 4, though the marginal effects of the two noncongruency measures become slightly more negative. Since there does not seem to be much evidence for the flypaper effect, I drop *State Revenue PP* and *Federal Revenue PP* from further analysis.[13]

[12] An HHI score of 0.465 is one standard deviation below the mean HHI score in the sample data.

[13] While there might be no flypaper effect, state or federal aid might be important for test scores (Cebula, 1977).

Table 4. OLS estimates of border non-congruence on ln (Local Revenue PP) with non-local revenue controls.

	A		B		C	
NonCongruent	-0.212	***	-0.119	***	-0.068	***
	(0.053)		(0.035)		(0.029)	
HHI	-0.303	***	-0.215	***	-0.120	***
	(0.076)		(0.053)		(0.045)	
ln (State Revenue PP)	-1.153	***	0.011		-0.058	
	(0.066)		(0.052)		(0.057)	
ln (Federal Revenue PP)	0.012		-0.008		0.018	
	(0.030)		(0.028)		(0.028)	
ln (Property Valuation PP)			1.010	***	0.912	***
			(0.043)		(0.052)	
Lunch			0.003		-0.270	**
			(0.116)		(0.117)	
Owner Occupied					0.458	**
					(0.181)	
Pages					0.000	
					(0.000)	
Racial Fractionalization					0.713	***
					(0.078)	
Income Inequality					-0.169	
					(0.109)	
Percent Private					0.055	
					(0.109)	
Intercept	17.443	***	-3.459	***	-2.301	**
	(0.518)		(0.842)		(0.940)	
Marginal Effect from Congruent to Non-Congruent						
HHI = 0.465	-0.353	***	-0.219	***	-0.124	***
HHI = 0.700	-0.424	***	-0.269	***	-0.152	***
HHI = 0.926	-0.492	***	-0.318	***	-0.179	***
R^2	0.295		0.833		0.856	

Note: Sample size is 607 Ohio school districts for the year 2000. Standard errors are in parentheses.
Statistical significance indicated at 0.01 (***), 0.05 (**), and 0.10 (*) levels.
For marginal effects, statistical significance is determined by a joint F-test for NonCongruent+HHI*γ=0.

Table 5 presents both the selection stage and the model estimates for the endogenous treatment of congruency status, as well as for the hazard function to test for self-selection.[14] The results are substantively the same, and the marginal estimate for non-congruency is larger than its OLS counterpart in Column C of Table 3. The point estimates in Table 5 indicate that changing from congruent to non-congruent would reduce local revenue by -0.188 percent. This estimate represents about 37 percent of a standard deviation in the dependent variable, and evaluated at the mean this would represent about $572 per pupil in revenue. In both models the hazard function

[14] This model can be sensitive to the choice of variables excluded from the selection stage. In this case, however, the estimates are not particularly sensitive to the choice of variables to exclude in the first stage. In the results all model-stage independent variables are excluded, but inclusion of all independent variables does not qualitatively change the results.

is statistically significant and therefore indicative of self-selection bias. The positive sign on ρ indicates that the direction of the bias would push congruency towards zero, consistent with the expectation that OLS estimates would underestimate the impact of non-congruency status because of self-selection.

Table 5. Two-step treatment effects with Heckman Correction on ln (Local Revenue PP).

	Selection		Model	
Population	-0.005			
	(0.028)			
Square Miles	0.390	***		
	(0.040)			
NonCongruent			-0.188	***
			(0.038)	
ln (Property Valuation PP)			0.926	***
			(0.024)	
Lunch			-0.251	***
			(0.076)	
Owner Occupied			0.373	*
			(0.197)	
Pages			0.000	**
			(0.000)	
Racial Fractionalization			0.626	***
			(0.086)	
Income Inequality			-0.226	
			(0.080)	
Percent Private			0.052	
			(0.119)	
Intercept	-0.721	***	-2.673	***
	(0.147)		(0.376)	
λ			0.141	***
			(0.025)	
ρ			0.707	
σ			0.200	

Note: Sample size is 607 Ohio school districts for the year 2000. Standard errors are in parentheses.
Statistical significance indicated at 0.01 (***), 0.05 (**), and 0.10 (*) levels.
NonCongruent is the endogenously treated variable and λ is the hazard function for self-selection bias.

6. Conclusion

The goal of this paper was to empirically determine if there was any evidence for the notion that noncongruent borders between school districts and their adjoining municipalities resulted in a fiscal commons problem that led to lower school spending. In order to avoid problems associated with border endogeneity, data on Ohio school districts was employed because school borders have been left largely unchanged since the mid-1960s. Drawing on 607 school districts in the year 2000, I present evidence that supports the view that border non-congruence leads to less local revenue per pupil, *ceteris paribus*. The effect can be seen in a multivariate regression and an instrumental variable treatment effects regression that corrects for self-selection bias. In addition, as school districts become more fragmented and thus more non-congruent, the influence of non-congruency on local revenue increases.

The policy implications of these results are not entirely clear. On the one hand, noncongruent school

districts generate less local revenue per pupil than districts whose borders are congruent with a municipality. While seemingly problematic, this could be the price paid for other benefits associated with noncongruence. For example, noncongruence could allow cities to have a large enough school district to have Advanced Placement courses at the high school level. In addition, noncongruence could be an important factor in Tiebout sorting as it allows for more jurisdictional diversity.[15] Jurisdictional diversity has been shown by Grassmueck et al. (2008) to help states retain residents. And while it is not necessarily a direct factor in attracting interstate migrants, jurisdictional diversity has been shown to lead to other things migrants want, such as better schools (Blair and Staley, 1995).[16] Future research should explore these other trade-offs made by school districts and municipalities to get a more complete picture of the overall effect that essentially fixed school district borders, some of which are noncongruent, have on the welfare of individuals within these communities.[17]

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[15] The seminal paper on Tiebout and migration is Cebula (1978).

[16] For more on the determinants of interstate migration, see Cebula and Alexander (2006) for a good overview and Mulholland and Hernández-Julián (2013) for a more recent paper focused on education.

[17] For example, what relationship, if any, is there between polycentrism within a metropolitan area and that area's economic freedom (Stansel, 2013)?

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