

Property Tax Cap Policy in Indiana and Implications for Public School Funding Equity

J. Scott Bowling, *Crawfordsville Community School Corporation*
Lori G. Boyland & Kimberley M. Kirkeby, *Ball State University*

Abstract The purpose of this research was to examine funding losses experienced by preschool to grade 12 (P–12) public school districts in Indiana, U.S., from an equity standpoint after the implementation of statewide property tax caps. All Indiana public school districts ($N = 292$) rely on property taxes as a major source of revenue, but districts experienced widely varying losses after the tax reform. Analyses across an array of district characteristics revealed significant relationships between differential funding losses and demographic indicators, including total student enrollment and the percentages of certain minoritized students. Implications for policy and practice include the integration of findings with essential research on funding equity in public education and attention on leadership toward reducing funding disparities.

Keywords School finance; School funding equity; Property tax caps; U.S. public education funding policy

Introduction

In 2010, voters in Indiana, U.S., approved ballot language placing tax caps into the state constitution, forever altering public school funding in the state. The new tax caps limited property taxes to one percent of assessed value for homeowners, two percent for agricultural and rental property, and three percent for business property (Indiana Department of Local Government Finance [IDLGF], 2015a). The new tax

J. Scott Bowling, Lori G. Boyland, & Kimberley M. Kirkeby. (2019). Property Tax Cap Policy in Indiana and Implications for Public School Funding Equity. *International Journal of Education Policy & Leadership* 15(9). URL: <http://journals.sfu.ca/ijep/ijep/article/view/881> doi: 10.22230/ijep.2019v15n9a881

IJEPL is a joint publication of PDK International, the Faculty of Education at Simon Fraser University, the College of Education and Human Development at George Mason University, and the University of Delaware. By virtue of their appearance in this open access journal, articles are free to use, with proper attribution, in educational and other non-commercial settings 90 days after initial publication. Copyright for articles published in IJEPL is retained by the authors. More information is available on the IJEPL website: <http://www.ijep.org>



caps changed the funding structure for all units that relied on property taxes as a revenue source, such as Indiana's preschool to grade 12 (P-12) public schools (Bradner, 2010).

The vote on the tax caps was actually the end result of an effort that began back in 2002 to revise the state's property tax assessment system (Rogers, 2005). Before 2002, a "true tax value" approach to assessment had been used in Indiana. Using this method, the value of a real estate structure was calculated by estimating the funding it would take to rebuild the structure, minus a depreciation amount based on the age of the structure. Therefore, under the true tax value system, well-maintained older homes in desirable locations were valued for tax purposes at amounts far below their actual market values.

In 2002, the Indiana Supreme Court ruled that the true tax value method was unconstitutional, mandating revisions to the property tax assessment system (Rogers, 2005). Indiana then implemented a "fair market value" approach, which used the open market sales price of real estate to calculate property value. As one might predict, re-assessments under the fair market value system resulted in increased property values and substantially higher property tax bills for many taxpayers. In reaction to the higher tax bills, public protests were held as citizens descended upon the state-house to voice their concerns (Associated Press, 2010).

The governor at the time proposed a new tax structure limiting property taxes to one percent for residential property, two percent for agriculture or rental property, and three percent for business property (Indiana Governor's Office Website, 2012). The idea quickly gained momentum and passed in 2008. Legislators then began the process of inserting the tax caps into the Indiana Constitution, which would make the change very difficult to reverse. To achieve placing the tax caps into the state's constitution, the issue was brought to public vote in Indiana in 2010 and passed with 71 percent voter approval (Bradner, 2010).

With the tax caps now firmly established in the Indiana Constitution, the issue of property taxes was resolved from a legislative perspective. However, the funding of P-12 public schools in Indiana was fundamentally altered due to this historic change. While the formula for the tax caps seems fairly simple, one percent for homes, two percent for farms and rentals, and three percent for businesses, P-12 school finance is very complicated. Because Indiana's public schools are partially funded through local property taxes, a consequence of the tax caps has been varying degrees of funding losses for school districts across the state (IDLGF, 2015b). However, to date, an examination of these funding losses from an educational equity standpoint has not been conducted.

Funding equity for P-12 public schools has been recognized as an important component of providing a free and appropriate education (Hochschild & Scovronick, 2000; Walters, 2001). Thus, the new property tax system implemented under the tax caps should be studied to determine what relationships exist between the new system and current P-12 school funding equity. The purpose of this study was to examine potential equity impacts of the new property tax caps on school districts with different demographic variables.

Equity in public school funding

Discussions of educational equity have been prominent in school finance literature for decades. The pursuit of the ideal of educational equity originated from the inequities that existed across the U.S. due to segregation, racism, poverty, and varying levels of wealth across communities (Warren, 2012). Beginning with the culmination of the Civil War and continuing today, states have sought methods to equalize funding for their public P–12 educational programs (Walters, 2001). This perceived need for funding equity is grounded in a shared belief that education is fundamental to opportunity in America, and that every child deserves an equal chance to reach his or her potential and achieve success (Hochschild & Scovronick, 2000).

A key concept regarding inequity in U.S. school funding revolves around the framework by which public schools receive revenue. Public P–12 schools receive funding from three primary sources: federal, state, and local government. However, the bulk of education spending comes from state and local dollars, as the federal government spends less than ten cents of every dollar provided for education (Cordeiro & Cunningham, 2013). On average, funding contributions to P–12 schools from state and local governments are roughly equal. States collect revenues from a variety of sources, including sales tax, income tax, corporate tax, and other taxes. Large portions of these funds are then distributed to P–12 schools using an adopted funding formula. In many states, the distribution to P–12 public schools represents more than half of the entire state government budget (Odden & Picus, 2014).

The foundation approach to school funding is utilized in most states' formulas, with the idea that a minimum amount (the foundation) should be allocated per pupil (Odden & Picus, 2004). Typically, school districts that cannot raise the foundation amount locally are given additional money from the state to make up the shortfall. In this way, every student is guaranteed to have at least the foundation amount provided for his or her education (Ramirez, 2002). To gain an idea of how much is spent yearly on P–12 public education per student, the latest U.S. Census Bureau (2010a) indicated that in Indiana, the yearly mean per-pupil amount was \$9,611, with the national average at \$10,615.

Localities primarily raise revenue for schools through property taxes. The property tax on average provides 45 percent of total revenue for U.S. school districts (U.S. Census Bureau, 2010a), and has driven equity issues in school finance. Differences in property wealth can be seen across the country, and these differences directly impact local school funding; therefore, the property tax represents a primary source of funding disparities between districts. These differences provided the groundwork for important equity lawsuits (Toutkoushian & Michael, 2005). For example, at the national level the highly influential *Serrano v. Priest* (1971) case declared funding disparities illegal for the first time in the nation's history (Brown, Ginsburg, Killalea, Rosthal, & Tron, 1978). This ruling sent shockwaves through statehouses across the U.S. and had legislators rushing at attempts to equalize school funding, which resulted in a shift away from simply ensuring a minimum amount of funding for education, to the concept of providing equitable funding for all students (Ramirez, 2002).

At the Indiana state level, the Lake Central School Corporation filed a lawsuit in 1987 that claimed the Indiana's funding system for schools was unconstitutional

due to funding inequities across the state. In an attempt to avoid a drawn-out and expensive legal battle, the governor and state legislature engaged the school district in negotiations. As a result, in 1993 the legislature enacted several major reforms to the state's school funding formula, including increased funding for school districts serving low-income students, the establishment of a target per-pupil dollar amount, and a ceiling on property tax rates. After these reforms were implemented, Lake Central Schools agreed to drop the case (Toutkoushian & Michael, 2005).

Previous equity studies have revealed large funding differences across the U.S. For example, Lynda Hertert, Carolyn Busch, and Allan Odden (1994) conducted a study of all 50 states, covering 14,907 districts with a student population of over 40 million. The authors examined per-pupil financial data from 1989–1990 to analyze equity among and within states and found significant differences across the nation. For example, average per-pupil spending in Alaska was \$8,201 compared to \$2,618 in Mississippi. Six states (Michigan, Illinois, Missouri, Montana, New Hampshire, and Vermont) were funding students in their wealthiest districts at more than double the amount of their poorest districts. Districts located in the Mideast received an average of \$6,690 per pupil compared to \$3,653 in the Southwest (Hertert, Busch, & Odden, 1994).

In Indiana, a study by R. Craig Wood, David S. Honeyman, and Verne Bryers in 1990 sought to assess equity following a decade of property tax reform. The authors examined all 303 school districts that existed at the time and measured equity data for the year before property tax reforms, and then compared that data to equity after the reform. Their results revealed that horizontal equity decreased over the study period, implying that disparities in school funding had worsened with property tax reform. Of particular interest to this study, Wood et al. (1990) stated that “the public policy in Indiana of limiting local property tax levies in order to support public education has led to greater fiscal inequity over time” (p. 92). Since that study was conducted, major changes have occurred in Indiana's property tax system without any corresponding research on possible impacts on school funding equity in the state.

Background on school funding in Indiana

Indiana has been using a Foundation Program as the basis for revenue distribution to schools since 1949 (Odden & Picus, 2004). Under this system, a base per-pupil funding amount is determined with the understanding that each individual school district will raise a designated portion of that amount locally and that school districts can choose to provide funding beyond the foundation if they are financially able.

Although this system sounds basic, converting this idea into a workable school funding formula has proven complicated and controversial for decades (Hirth & Eiler, 2012; Michael, Spradlin, & Carson, 2009). In part, this is because historically the funding formula placed considerable reliance on local property taxes as a major source of revenue. Before 1974, Indiana even allowed individual school districts total control over their communities' general fund tax rates (Michael et al., 2009). This practice and other state-level policies established and entrenched a disproportionate system because communities across the state had widely varying levels of assessed valuation per student, contingent on the local property tax base or the overall

wealth of the community. Statewide, there were sizable variances in property tax rates and in school districts' annual per-pupil expenditures.

To address concerns of disproportionate funding and the wide range in per-pupil expenditures across the state, lawmakers over the years have attempted various methods to supplement the foundation system and improve funding equity (Michael et al., 2009). As mentioned earlier, in 1993 the state legislature set limits on property tax rates to equalize the amount of revenue that could be raised by districts across the state (Toutkoushian & Michael, 2005). State legislators attempted to create a funding formula that provided less state aid for school districts with high assessed valuation, while school districts with less assessed valuation per pupil received additional state funding. An "at-risk" or "complexity" index was also developed to provide additional monies to school districts with high percentages of students who qualified for free or reduced-price meals (Michael et al., 2009).

Then, in 2008, the Indiana state legislature made several radical changes regarding funding. First, the state took over the responsibility for the general fund for public school districts. Previously, a combination of local property taxes and state support supported this fund. This left transportation, bus replacement, capital project, and debt service funds as the remaining funds supported through local property tax dollars in the districts. In addition, the new property tax caps were passed. Although the tax caps certainly impacted funding for school districts, these caps were not devised to change the nature of school funding. Instead, the caps were designed to lower taxes for property owners and to limit the amount of property tax increases moving forward (Thaiprasert, Faulk, & Hicks, 2010).

However, the new property tax caps diminished many school districts' ability to raise funds for their transportation, bus replacement, capital project, and debt service funds. School districts that held high debt ratios and had large percentages of homeowners as their property owners became especially vulnerable. This is because before the tax caps, a school district's debt limit was determined by its ratio of debt to assessed valuation, as well as taxpayers' willingness to pay higher taxes to support the schools. However, after the tax caps took effect, school districts that had acquired high debt, often due to construction projects needed to accommodate growth, were still obligated to pay their high debt payments, but were now receiving less tax revenue.

With the new tax caps limiting the amount of revenue that local school districts could raise, the state legislature agreed to allow school districts to endeavor to pass property tax referenda to address local needs for the general fund or for construction (Hiller & Spradlin, 2010). To initiate a referendum, school districts had to go directly to their constituents and place the question on a ballot for a public vote in either a May or November election. If the referendum passed, the district would then be permitted to raise the local property tax to the amount above the tax cap that was specified on the ballot question (Hiller & Spradlin, 2010). From 2008 to 2018, there have been 175 referenda attempted in Indiana and 62 percent ($n = 109$) of these have passed (Center for Evaluation and Education Policy, 2018).

In summary, Indiana has struggled historically with disparate school funding, but legislative attempts have been made over time to improve funding equity across

the state. Recent changes to Indiana's Foundation Program have shifted some of the costs of school funding away from local property taxes and toward statewide sources. However, local property taxes remain an important source of funding for Indiana's public schools. Although the property tax caps were not designed as a policy initiative to alter school funding, one consequence has been that school districts across the state have experienced varying, in many cases substantial, revenue losses. In 2016, among the 292 school districts in Indiana, property tax cap loss differed greatly from less than \$100 to over \$17,000,000. Losses to school districts across the state total \$238,359,015. The mean tax cap loss per school district in 2016 was \$824,772, and the median tax cap loss was \$97,864 ($SD = 2,045,098$).

Purpose

Public school funding equity is recognized as a key component of providing a free and appropriate education for all students. Recent legislative changes in Indiana capped property taxes, which resulted in varying degrees of funding loss for school districts across the state (IDLGF, 2015b). To protect the equity ideal, it is important to investigate the impacts of property tax reform on P-12 school funding. The purpose of this research was to examine the financial impacts of recent property tax caps on Indiana public school districts with respect to key demographic variables, such as location, urbanicity, and school composition. Three research questions guided this study:

1. Are there relationships between property tax cap losses and school district enrollment or district property wealth?
2. What percentage of rural, urban, and suburban school districts received state-approved waivers from protected taxes in order to assist them in coping with substantial tax cap funding losses?
3. Are there relationships between property tax cap losses and school districts that serve differential proportions of students who are English learners, students receiving free or reduced-price meals, special education students, or students of color?

Warrants

To make logical connections between the research questions and methodology, this section will discuss why the methods and the statistical analyses that were employed were selected as appropriate in addressing the research questions. This section will also provide necessary background information specific to individual research questions.

For research question one, which explored tax cap losses in relationship to district student enrollment and district property wealth, it was necessary to examine student enrollment and property wealth, because these are the two fundamental demographic factors that control school funding in Indiana. To determine property wealth, the assessed valuation per pupil and actual tax levies on a per-pupil basis were used. Although the assessed valuation per pupil is useful in gauging the capacity of a community to support its students' education, it does not necessarily indicate that students are indeed being supported at greater or lesser degrees. For example, the school board in a wealthy district could decide to maintain low property tax rates to lessen

the burden on its residents, as opposed to increasing financial support for its schools. For this reason, in addressing research question one, it was valuable to also look at the actual tax levies on a per-pupil basis in addition to assessed valuation per pupil.

As a first step in addressing research question one, correlational analyses were employed, as these analyses enable an assessment of the significance and strength of any relationships among the variables. Bivariate correlations (Pearson's r) were performed between student enrollment and property tax cap losses, and then this same procedure was used to examine the relationships between property tax cap losses and property wealth using both the assessed valuation and tax levies on a per-pupil basis. Then, to further assess the relationships between student enrollment, property wealth, and 2016 tax cap losses, a multiple regression analysis was performed with tax cap losses as the dependent variable, which revealed whether these variables were predictive of tax cap losses and if so, the amount of variance explained.

Research question two looked at the percentages of school districts from different communities (rural, urban, and suburban) that received state-approved waivers from protected taxes in order to assist them in coping with substantial tax cap funding losses. This waiver is technical in nature. The IDLGF (2015b) is required by law to "protect" debt service levies when approving school budgets. This means that losses due to property taxes can only be taken from the remaining school funds that are financed with property taxes: capital projects, transportation, and bus replacement funds. After the property tax caps were implemented, some school districts experienced such serious losses in these three funds that they became financially incapable of providing transportation for students (Boyland & Bourke, 2012).

To address this situation, in 2014 the general assembly passed special legislation to provide districts that would lose 10 percent or more of their transportation funding a waiver from protected debt service levies. This waiver allowed school districts to distribute tax cap losses among all funds, including debt funds. With debt funds now absorbing larger amounts of the tax cap losses, transportation levies were restored at varying degrees across school districts. Given that the state legislature had to step in and enact emergency legislation to help some school districts, it stands to reason that these districts felt the greatest effects of property tax cap losses. Therefore, to answer research question two, a list of school districts that received the waiver from protected taxes was compiled to determine each district's locality based on state guidelines (IDOE, 2016). These were then computed and visually compared to the percentages of school districts within each classification of rural, urban, or suburban areas that had received the waiver.

The third research question investigated relationships between property tax cap losses and school districts that served differential populations of English learners, students receiving free or reduced-price meals, students receiving special education services, and students of color. To address this question, both correlational and regression analyses were conducted. First, a cross-correlational analysis of potential demographic predictors of tax cap loss was performed. This allowed for the assessment of any prospective issues with multicollinearity, which occurs when two or more predictor variables are highly correlated and may overlap in accounting for a portion of variance (Field, 2009). Bivariate correlations were then performed to as-

ness the existence and strengths of any relationships, followed by a four-step hierarchical regression analyses. This statistical approach was chosen so that each variable's contribution to tax cap losses (as indicated by the improvement in R^2 [ΔR^2]) could be assessed, while also controlling for the effects of the variables that had been entered into previous steps of the model (Field, 2009).

Method

Procedure and data sources

A non-experimental quantitative design was employed for this study. Actual property tax revenues for all funds for the most current calendar year available (2016) were collected for every public school district ($N = 292$) in Indiana. In addition, pertinent demographic data were gathered for each district. All data used in this study was publicly available and collected using the access data sites of the Indiana Department of Education (IDOE, 2016) and the Indiana Department of Local Government Finance (IDLGF, 2016) and through additional public records requests from these sources. The following district-level data were collected: assessed valuation, property tax revenue, protected debt service waiver status, total student enrollment, percentage of special education students, percentage of students classified as English learners, percentage of students receiving free or reduced-price meals, and percentage of students of color enrolled, which consisted of all students not in the "White" ethnicity category per the IDOE. The property tax revenue data used for this study combined the amounts received for all property tax-rated funds during the most recent year for which revenue data was available (2016) in all districts.

All data were entered into a spreadsheet for import into the Statistical Package for the Social Sciences (SPSS 24.0 [IBM Corp., 2016]). Descriptive and inferential analyzes were then conducted, as described in the warrants section, including multiple correlation and regression analyses to examine the variables identified in research questions one and three.

Results

Findings

Research Question 1: Are there relationships between property tax cap losses and school district enrollment or district property wealth?

Correlational analysis revealed that the r -value for enrollment and property tax cap losses was 0.696 ($p < .001$), which indicated a large positive association between tax cap losses and enrollment, meaning that tax cap losses increased as student enrollment increased. A correlational analysis of school district property wealth using assessed valuation per pupil and tax cap losses indicated an r -value of -0.143, showing a small negative relationship ($p = .015$). These results suggested that the relationship between property wealth as determined by assessed valuation per pupil and tax cap losses in 2016 was weak. Correlational results also revealed a small positive relationship between levy per pupil and tax cap losses ($r = .190$, $p = .001$), suggesting that school districts with higher tax levies experienced slightly greater tax cap losses.

Next, to better determine the relationships between student enrollment, property wealth, and 2016 tax cap losses, a multiple regression analysis was performed with

tax cap losses as the dependent variable and student enrollment and levy per pupil as the independent variables (see Table 1). An assessed valuation was not included in the regression model due to its strong relationship with levy per pupil (see cross-correlations presented in Table 2), which would have resulted in multicollinearity and biased the results. The results of the regression indicated that the overall model was statistically significant $F(2, 286) = 148.53, p < .001$, with total enrollment and levy per pupil significantly predicting 50.9 percent of the variance in tax cap losses. These results, as shown in Table 1, further revealed student enrollment to be more important in terms of explaining variance in property tax cap losses, which coincided with the correlational results.

Table 1. Total student enrollment and levy per pupil as predictors of tax cap loss

Variable	<i>B</i>	<i>SE</i>	β	<i>t</i>	Sig.
Total student enrollment	331.87	19.97	.689	16.62	.000
Levy per pupil	323.98	85.87	.165	3.77	.000

Notes: *B* = unstandardized regression coefficients, *SE* = standard error, β = standardized regression coefficients, *t* = test statistics, Sig. = significance of (*p*) value

Table 2. Cross-correlation of key school district characteristics

Pearson correlations	1.	2.	3.	4.	5.	6.	7.
1. % Students of color	1						
2. % Free or reduced-price meals	.460**	1					
3. % Special ed. students	-.142*	.340**	1				
4. % English learners	.653**	.341**	-.171**	1			
5. Levy per pupil	.081	-.205**	-.006	-.007	1		6. AV per
pupil	-.102	-.180**	.067	-.091	.669**	1	
7. Total student enrollment	.577**	.089	-.119*	.392**	.048	-.121*	1

Notes: *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). AV = Assessed Valuation

Research Question 2: What percentage of rural, urban, and suburban school districts received state-approved waivers from protected taxes in order to assist them in coping with substantial tax cap funding losses?

Research question two was analyzed by investigating the number of school districts receiving waivers from protected taxes. As discussed earlier, this special state-approved waiver allowed certain school districts to distribute tax cap losses among all

funds. The school districts that received protected debt waivers, broken down by local classification, were 58 percent urban, 44 percent suburban, and 10 percent rural. Therefore, relief in the form of the protected property tax cap waiver was concentrated in suburban and urban schools. Only 10 percent of rural school districts qualified for this form of emergency state funding assistance. These results suggested that revenue losses due to the property tax caps were concentrated in urban and suburban districts, while affecting only a minority of rural school districts.

Research Question 3: Are there relationships between property tax cap losses and school districts that serve differential proportions of students who are English learners, students receiving free or reduced-price meals, special education students, or students of color?

Multiple correlations were first used to explore this research question, employing the data gathered for each school district on tax cap losses and student enrollment demographics. For the first category of students (English learners), the correlation coefficient r for the percentage of students who were classified as English learners yielded a value of 0.322 ($p < .001$), indicating a moderately positive relationship.

The second demographic category, the percentage of students receiving free or reduced-price meals, was significantly and positively related to tax cap losses ($r = .277$, $p < .001$), suggesting that school districts with higher percentages of students receiving meal assistance were subject to greater losses of property tax income under the property tax caps.

For the next category, the percentage of special education students, results were not significant ($r = -.008$, $p = .751$), suggesting no relationship of significance existed between property tax cap losses and the percentage of special education students served. Conversely, if a positive significant relationship had been found, this might have indicated that losses increased as districts' special education populations increased.

For the final demographic category, the percentage of students of color served, the calculated r -value was 0.576 ($p < .001$), which indicated a strong positive relationship. These results suggested that property tax cap losses were higher in the school districts that had higher percentages of students of color enrolled. These significant findings, as well as those for students receiving free or reduced-price meals and English learners, called for further analyses.

Next, a cross-correlational analysis was conducted of all seven characteristics that were analyzed in relationship to tax cap losses to determine if any of these variables were correlated. These results are shown in Table 2.

This analysis revealed significant correlations between several variables. Most notably, total student enrollment, the percentage of English learners, and the percentage of students of color were strongly correlated. The higher associations between these three variables are likely due to complex systems of inequities that are beyond the scope of this study, in which students who are racial minorities also tend to participate in free/reduced-price meal programs—which is a proxy for measuring socioeconomic status (Caldas & Bankston, 1997). The fact that students who are English learners also tend to be students of color is not a surprise and does not shed additional light on this study. However, the finding that total enrollment was found

to be positively correlated with the percentages of students of color and English learners is important to consider as these results may reflect, to some degree, the tendency of larger districts to serve higher percentages of students of color and English learners (U.S. Census Bureau, 2010b).

To better assess these variables in terms of potential relationships predictive of tax cap losses, a four-step hierarchical regression analyses was performed, which allowed each variable's contribution to be assessed. In step one, total student enrollment was entered, which explained 48.5 percent of the variance in tax cap losses. The purpose of entering this variable into the first step—despite already accounting for its relationship in research question one—was so that each demographic variable's contribution above and beyond total student enrollment could be determined.

The percentage of students of color was entered in step two of the model and was found to significantly explain an additional 4.5 percent of the variance, while in the third step, the percentage of students receiving free or reduced-price meals led to a slight increase in variance explained ($\Delta R = .016$). In the final step, the percentage of English learners and special education students was entered, resulting in a non-significant increase in variance explained ($\Delta R = .009$).

The final regression model was statistically significant and indicated that, taken together, the student demographic variables explained an additional seven percent of the variability in tax cap losses after accounting for total student enrollment. While the percentages of students of color and students receiving free/reduced-price meals were significant predictors of the percentage of tax cap losses districts experienced, students receiving special education was found to be unrelated.

However, when English learners were included in the model, the results revealed a negative relationship to tax cap losses ($\beta = -.117$). This was an unexpected finding given that correlational results indicated a positive relationship between the percentage of English learners and tax cap losses ($r = .322, p < .001$) and appears to be a result of multicollinearity due to the correlation between English learners and students of color ($r = .653, p < .001$).

Multicollinearity occurs when two or more of the independent variables are highly correlated with one another and, therefore, account for the same portion of variance (Field, 2009). As a result, one variable often ends up dominating the variance explained and can result in the switching of coefficient signs (i.e., positive to negative). Students who are English learners are typically also categorized as students of color, which would explain why the regression results suggest that the two variables are attempting to account for the same portion of variance in the dependent variable (Nelson & Davis-Wiley, 2017). In other words, although there was a small positive relationship between the percentage of English learners and tax cap loss, this variable did not appear to account for any additional variance that was not already explained by the percentage of students of color in the district.

Overall, these results suggested that after accounting for total student enrollment, the most important predictor of whether a given school district within the state of Indiana experienced greater financial loss as a result of property tax caps was the percentage of students of color enrolled, followed by the percentage of students receiving free or reduced-price meals. Table 3 presents these results.

Table 3. Student demographics as predictors of tax cap loss

Variable	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>R</i> ²	<i>R</i>
Step 1					.485	.485
Student enrollment	335.49	20.40	.696	16.44		
Step 2					.530	.045
Student enrollment	263.08	23.90	.546	11.01		
% Students of color	29,077.26	5,539.32	.260	5.25		
Step 3					.546	.016
Student enrollment	281.81	24.27	.585	11.61		
% Students of color	19,044.93	6,311.51	.171	3.02		
% Free/reduced-price meals	19,630.63	62,114.07	.146	3.16		
Step 4					.555	.009
Student enrollment	283.14	24.23	.588	11.69	***	
% Students of color	27,947.38	7,395.56	.250	3.78	**	
% Free/reduced-price meals	19,103.47	7,037.81	.143	2.71	**	
% English learning	-57,585.76	26,080.14	-.117	-2.21	*	
% Special education	12,742.90	28,417.62	.021	.448		

Notes: * $p < .05$. ** $p < .01$. *** $p < .001$. *B* = unstandardized regression coefficients, *SE* = standard error, β = standardized regression coefficients, *t* = test statistics, *R*² = measure of the strength of association, ΔR = the increment of change in *R*

Summary of findings

This study gathered 2016 financial and demographic data for every public school district ($N = 292$) in Indiana and analyzed key characteristics in relationship to financial losses from property tax caps. Results from research question one revealed that student enrollment was strongly positively correlated with tax cap losses. These results were interesting given that growing enrollment resulted in more revenue from state sources, but less from local sources. In other words, these results indicated that school districts with larger student populations were rewarded with more state dollars as their enrollments grew, while at the same time losing more money from local property taxes due to the tax caps. School district property wealth was weakly correlated with tax cap loss when compared from both a holistic property wealth perspective and from the analysis of actual tax levy data.

The second research question looked at the locations (urban, suburban, rural) of districts qualifying for the state legislative aid that was enacted to assist districts struggling with substantial losses as a result of the tax caps. Urban and suburban districts constituted the vast majority of the districts receiving state aid, while rural districts on the whole needed little intervention. These findings aligned with earlier results indicating that student enrollment was positively correlated with tax cap loss, as in Indiana, the vast majority of larger school districts are located in urban and suburban areas (U.S. Census Bureau, 2010b).

The last research question examined school district student demographic characteristics in relation to tax cap losses. No relationship was found between losses and the percentage of special education students served. However, significant positive relationships were revealed between tax cap losses and the percentage of English learners, students on free or reduced-price meals, and in particular, the percentage of students of color served by school districts, representing important and troubling findings that call for further research.

Discussion

After property tax cap reform was implemented in Indiana, many public school districts experienced revenue losses, but these losses were not uniform around the state and were difficult to understand or predict. The consequences of tax caps had not been previously studied from an educational equity standpoint. Thus, the purpose of this study was to examine the funding losses in relationship to several key school enrollment and location variables.

An extensive amount of school district financial and demographic data from 2016 was collected and analyzed, revealing several interesting findings. First, student enrollment was revealed to be a strong predictor of property tax cap loss (i.e., school districts with higher enrollments experienced larger losses), which is a notable finding. Cross-correlational results indicated some potential overlaps between student enrollment, the percentage of English learners, the percentage of students of color, and—to a lesser extent—the percentage of students receiving free or reduced-price meals. Therefore, further research should consider how student demographic variables and total enrollment influence property tax cap losses independent of one another.

This study also looked at school district location in terms of property tax cap losses. This part of the inquiry was aided by the fact that the state of Indiana had already singled out and provided emergency assistance to those schools that had sustained major financial losses due to the tax caps. When districts were categorized by location and then cross-referenced for those that received this aid from the state, the data revealed that 58 percent of urban schools and 44 percent of suburban schools suffered losses so significant that their student transportation systems were jeopardized. However, only 10 percent of rural schools were impacted in this manner.

Wood et al. (1990) found that inequity in the state of Indiana existed for both students and taxpayers. Regardless of where a school district is located, the United States has long believed that equal funding is necessary to provide every child with the key educational experiences necessary to provide opportunities for success (Hochschild & Scovronick, 2000). The fact that Indiana school districts located in urban and suburban communities were strained to raise adequate funds to provide transportation for students while rural districts were impacted at a much lesser percent, substantiates previous research that shows location does, unfortunately, matter when it comes to school funding.

Implications and recommendations for policy and practice

This study has important implications, which generate recommendations for policy and practice. At the state level, policymakers, local government taxing agencies, and

district leaders should seek to determine why the negative impact of property tax cap losses, as measured by the number of school districts needing protected debt waivers provided by the Indiana state legislatures, was higher in urban and suburban areas than among rural school districts. In addition, the relationships between tax cap loss and total enrollment, the percentages of students of color, the percentages of English learners, and the percentages of students who receive free or reduced-price meals should be thoroughly investigated to determine if these associations are indeed unintended negative consequences of the tax caps. If so, changes to the property tax system are warranted.

At the national level, the results of this study could inform tax policy throughout the U.S. Currently, 19 states in the U.S. have property tax caps. Demographically, Indiana is representative of the Great Lakes region in general (U.S. Census Bureau, 2010b). Other states in this region that are considering tax caps could use this study to look at the pros and cons of implementing such a system. Indiana has been put forth as a national model, especially among Republican policymakers, of both educational reform (American Legislative Exchange Council, 2015) and fiscal restraint (Leonhardt, 2011). The results of this study could serve as a source of hard data to either bolster or refute these arguments as lawmakers in the Midwest and across the nation make tough decisions about tax policy and school funding.

While funding equity has been the subject of a number of studies, as indicated in earlier sections, property tax caps have not been studied as a distinct and separate school funding issue. This is probably due to the fact that property tax caps have not existed for a long period of time, and because not all states rely on such a system. However, legislative action in Indiana is being replicated in other states across the nation (Roff, 2013). This indicates a need to further understand the unique funding inconsistencies that could occur with property tax cap implementation and the potential unintended consequences of such a system, in particular on larger school districts and/or districts with higher enrollments of minoritized students.

Limitations and need for further research

There are several limitations to this study. First, it was not possible to completely tease apart several important variables. The results from the hierarchical regression indicated that English learners and students of color accounted for the same portion of variance in tax cap losses, suggesting that an area for future research includes exploring more advanced methods of statistically differentiating these two variables. Furthermore, student enrollment was found to be a highly significant predictor of tax cap loss, calling on additional research to determine if student enrollment is independent in relation to the other demographic variables.

Another limitation of this study is that it examined only one year of data. This study should be repeated using several years of data to see if trends or patterns emerge. It might also be helpful to repeat this study using several years of data from other states that have implemented property tax caps. To make data comparable, it would be wise to focus on states that cap taxes in a similar manner to Indiana, because some states cap property taxes in very different ways (Rogers, 2005). Property tax cap systems that are deemed successful in other states need to be examined

broadly against the factors indicated by this study. Perhaps different methods of placing limits on property taxes result in the mitigation of some of the stronger relationships found in this particular study. Limiting property taxes to one, two, and three percent brackets based on property type is rather arbitrary. It is possible that other states have found ways to provide the desired limits on property taxation without fostering the relationships revealed in this study.

Conclusions

This study's findings revealed several statistically significant relationships between tax cap-related funding losses and school districts' demographics characteristics. School districts with larger enrollments, including districts with higher percentages of students of color and English learners, were found to have experienced larger funding losses than other districts under Indiana's new tax cap system. These are new findings that add information to the knowledge of Indiana school finance. These findings also raise additional questions about the potential outcomes of the tax caps in creating funding discrepancies for Indiana school districts with large or growing student enrollments, and/or with higher percentages of English learners or students of color. If continued over time, these funding losses could have serious negative ramifications impacting educational equity for students attending specific public schools in Indiana.

Therefore, these findings have implications in terms of the consequences of state financial policy in either promoting or undermining public school funding equity. Every P-12 student deserves equal access to high-quality public school programming. However, state-level policies and legislative actions that create school funding inequities can lead to disparities in educational programs, experiences, and facilities, which create differential educational opportunities for children across the state. Policymakers, legislators, and educational leaders should review the findings presented in this study to determine if changes are needed to ensure that every student in Indiana is funded equitably.

References

- American Legislative Exchange Council. (2015). *Indiana education reform package*. Arlington, VA: American Legislative Exchange Council. Retrieved May 3, 2017, from <http://www.alec.org/model-legislation/indiana-education-reform-package/>.
- Associated Press. (2010, October 31). Voters expected to ok property-tax cap amendment. *Indianapolis Business Journal*. Retrieved May 3, 2017, from <http://www.ibj.com/articles/23154-voters-expected-to-ok-property-tax-cap-amendmend>.
- Boyland, L.G., & Bourke, W.D. (2012). Eliminating K-12 public school transportation as a cost-saving measure. *eJournal of Education Policy*, fall/winter.
- Bradner, E. (2010, November 2). Indiana voters pass property tax caps amendment. *Evansville Courier & Press*. Retrieved May 9, 2017, from <http://archive.courierpress.com/news/politics/indiana-voters-pass-property-tax-caps-amendment-ep-446092782-327205681.html>.
- Brown, L., Ginsburg, A., Killalea, J.N., Rosthal, R., & Tron, E. (1978). School finance reform in the seventies: Achievements and failures. *Journal of Education Finance*, 4(2), 195-212.
- Caldas, S.J., & Bankston, C. (1997). Effect of school population socioeconomic status on individual academic achievement. *The Journal of Educational Research*, 90(5), 269-277.

- Center for Evaluation & Education Policy. (2018). *Referenda scoreboard* [Data file]. Retrieved May 20, 2018, from <http://ceep.indiana.edu/search/?q=Referenda%20scoreboard%20>.
- Cordeiro, P., & Cunningham, W. (2013). *Educational leadership: A bridge to improved practice*. Boston, MA: Pearson Education.
- Field, A. (2009). *Discovering statistics using SPSS*. Thousand Oaks, CA: Sage Publications Ltd.
- Hertert, L., Busch, C., & Odden, A. (1994). School financing inequities among the states: The problem from a national perspective. *Journal of Educational Finance*, 19(3), 231–255.
- Hiller, S., & Spradlin, T. (2010). School referenda in Indiana. *Center for Evaluation & Education Policy: Education Policy Brief*, 8(2), 1–12.
- Hirth, M., & Eiler, E. (2012). Indiana's formula revisions and *Bonner v. Daniels*: An analysis of equity and implications for school funding. *Educational Considerations*, 39(2), 38–43.
- Hochschild, J.L., & Scovronick N. (2000). *Democratic education and the American dream. Rediscovering the Democratic Purposes of Education, Studies in Government and Public Policy*. Lawrence, KA: University Press of Kansas.
- IBM Corp. (2016). *IBM SPSS Statistics for Windows, Version 24.0*. Armonk, NY: IBM Corp.
- Indiana Department of Education. (2016). *Compass: School and corporation data*. Indianapolis, IN: Indiana Department of Education. Retrieved July 7, 2017, from <https://compass.doe.in.gov/dashboard/overview.aspx>.
- Indiana Department of Local Government Finance. (2015a). *Citizens guide to property tax*. Indianapolis, IN: Indiana Department of Local Government Finance. Retrieved June 2, 2017, from <http://www.in.gov/dlgf/2516.htm>.
- Indiana Department of Local Government Finance. (2015b). *Impact of the property tax caps, 2014*. Indianapolis, IN: Indiana Department of Local Government Finance. Retrieved September 19, 2017, from http://www.in.gov/dlgf/files/2014_Statewide_Summary_of_Circuit_Breaker_Impact.pdf.
- Indiana Department of Local Government Finance. (2016). *Reports and data section*. Indianapolis, IN: Indiana Department of Local Government Finance. Retrieved May 3, 2017, from <https://www.in.gov/dlgf/>.
- Indiana Governor's Office Website. (2012). *Questions and answers*. Retrieved May 4, 2017, from http://www.in.gov/gov/files/Questions_and_Answers_open3.pdf.
- Leonhardt, D. (2011, January 4). Budget hawk eyes deficit. *The New York Times*. Retrieved May 3, 2017, from <https://www.nytimes.com/2011/01/05/business/economy/05leonhardt.html?mtrref=www.google.com>.
- Michael, R., Spradlin, T., & Carson, F. (2009). Changes in Indiana school funding. *Center for Evaluation and Education Policy: Education Policy Brief*, 7(2), 1–15.
- Nelson, R.L., & Davis-Wiley, P. (2017). Marginalization of U.S. born English language learners through English-only policies: Myths, reality and implications. *Journal of Education & Social Policy*, 4(2), 103–112.
- Odden, A., & Picus, L. (2004). *School finance: A policy perspective* (3rd ed.). Boston, MA: McGraw-Hill.
- Odden, A., & Picus, L. (2014). *School finance: A policy perspective* (5th ed.). Boston, MA: McGraw-Hill.
- Ramirez, A. (2002). The shifting sands of school finance. *Educational Leadership*, 60(4), 54–57.
- Roff, P. (2013, April 1). Education reformers should look to Indiana. *U.S. News & World Report*. Retrieved May 3, 2017, from <https://www.usnews.com/opinion/blogs/peter-roff/2013/04/01/school-vouchers-inject-market-based-reform-into-schools>.
- Rogers, C. (2005). The new age in Indiana property tax assessment. *Indiana Business Review*, 80(1), 2–4.
- Serrano v. Priest*. (1971), 5 Calif. 3d 584.
- Thaiprasert, N., Faulk, D., & Hicks, M. (2010, February). The economic effects of Indiana's property tax rate limits. *Center for Business and Economic Research*, Retrieved July 10, 2017, from <https://projects.cberdata.org/18/the-economic-effects-of-indiana-s-property-tax-rate-limits>
- Toutkoushian, R., & Michael, R. (2005). Demystifying school funding in Indiana. *Education Policy Brief: Center for Evaluation & Education Policy*, 3(2), 1–17.

- U.S. Census Bureau. (2010a). *Public education finances: 2010*. Suitland, MD: U.S. Census Bureau. Retrieved June 6, 2017, from <http://www2.census.gov/govs/school/10f33pub.pdf>.
- U.S. Census Bureau. (2010b). *2010 census data*. Suitland, MD: U.S. Census Bureau. Retrieved June 6, 2017, from <https://www.census.gov/programs-surveys/decennial-census/data/datasets.2010.html>.
- Warren, C. (2012). The effect of post-racial theory on education. *Journal for Critical Education Policy Studies*, 10(1), 197–216.
- Walters, P.B. (2001). Educational access and the state: Historical continuities and discontinuities in racial inequality in American education. *Sociology of Education*, 74(Extra Edition), 35–49.
- Wood, R., Honeyman, D., & Bryers, V. (1990). Equity in Indiana school finance: A decade of local levy property tax restrictions. *Journal of Education Finance*, 16(1), 83–92.