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The Impact of the Great Recession on School District Finances: Evidence from New York

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Abstract

Despite education's fundamental role in human capital formation and growth, there is no research that examines the effect of the Great Recession (or any other recession) on schools. Our paper begins to fill this gap. Exploiting detailed data on school finance indicators and an analysis of trend shifts, we examine how the Great Recession affected school funding in New York State. While we find no evidence of effects on either total revenue or expenditure, there were important compositional changes to both. There is strong evidence of substitution of funds on the revenue side—the infusion of funds from the federal stimulus occurred simultaneously with statistically and economically significant cuts in state and local financing, especially the former. On the expenditure side, instructional expenditure was maintained, while other categories such as transportation, student activities, and utilities suffered. Important heterogeneities in experiences are also observed by poverty level, metropolitan area, school district size, and urban status. Affluent districts were hurt the most; the New York City metro area, especially Nassau County, sustained the largest losses in terms of both revenue and expenditure. Our findings promise to facilitate an understanding of how recessions affect schools and of the role policy can play in mitigating the consequences.

Key words: school finance, recession, American Recovery and Reinvestment Act, federal stimulus

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1 Introduction

The financial crisis and the Great Recession that followed led to declining tax revenues, which in turn strained state and local government finances. The bursting of the housing bubble and a weakened labor market led to lowered property, income, and sales tax revenues. This limited state and local governments' ability to fully fund school districts. The federal government allocated $100 billion to states for education starting in the fall of 2009 through the American Recovery and Reinvestment Act (ARRA) to stave off serious budget cuts. New York received $5.6 billion under ARRA funding and an additional $700 million from the Race to the Top Competition. The stimulus funding was intended to lessen the impact of decreased state and local funding on school spending.

Schools are an indispensable part of our economy and society. They have an undisputed role in human capital formation and building the nation's future. Therefore, it is essential to understand how the Great Recession affected schools and what, if any, repercussions it might have on the delivery of education services and student learning. While there is a slowly emerging literature that seeks to understand how the Great Recession has affected other parts of the economy, surprisingly, there is no paper thus far that investigates how schools have been affected. This paper starts to fill this gap. This is the first paper that seeks to understand how recessions affect schools. It does so in reference to the Great Recession and in the context of New York. New York is particularly of interest because of New York City, the country's largest school district. In addition, New York is the third largest state school system, serving 5.6% of the nation's students[4]. Also notable is New York's diversity--it contains a range of urban, suburban, rural districts, with a wide distribution of average income levels, which makes studying New York all the more interesting and instructive. In this paper, we study how school revenue and expenditure as well as their compositions were affected during the recession and federal stimulus period. In

[4] Authors' calculations using NCES CCD 2009.

addition to investigating aggregate trends, we also analyze whether there were variations in these patterns across metro divisions, poverty, size, and urban status.

Using detailed data on various school finance indicators and their compositions and a trend shift analysis, we examine the above questions. Some interesting findings emerge. There is no evidence of any statistically significant shift in either total revenue per pupil or total expenditure per pupil after the recession.[5] While there is no evidence of overall shifts, there is robust evidence of compositional shifts within both revenues and expenditures. With the infusion of federal stimulus funds, state aid shifted downwards, and so did local revenue. This substitution of funds led to an increased reliance on federal funds, while the share of state and local revenues declined. Meaningful shifts are also observed in the composition of expenditures. Instructional expenditures, the key category that most directly affects student learning, was not adversely affected. In contrast, non-instruction categories such as transportation, utilities, student activities, and student services received cutbacks, although the effects are not always statistically significant. There is also evidence that school districts resorted to increased debt financing after the recession.

In spite of these overall patterns, there were considerable variations within the state. The affluent districts were the worst hit in terms of both revenue and expenditures and were also able to issue less debt. Non-instructional expenditures in these districts fell the most in these districts, and unlike high and medium poverty districts, they exhibited a fall in instructional expenditures as well. Analysis by metro areas reveals that Nassau experienced sizable downward shifts both in total expenditures as well as in its various components. NYC also experienced some declines, though they were less widespread and economically considerably smaller than Nassau.

[5] While there is evidence of small declines in total revenue per pupil (especially in the 2009-10 school year), these effects are never statistically different from zero.

There were heterogeneities by size and urban status as well. Large districts experienced the largest losses in terms of both total revenue and expenditure, but small districts saw the largest cuts in terms of both instruction and non-instruction categories. On the other hand, urban districts exhibited the largest declines in both instructional and non-instructional expenditures although these declines were not always statistically significant.

In addition to these heterogeneities, we also investigate whether there were variations in patterns across the "Big Five" districts in New York. We find that indeed there were. New York City and especially Yonkers fared the worst after the recession.

Of note here is that the patterns suggest that, in the face of budget cuts, the school districts tried to maintain instructional expenditures. Across the board, non-instruction categories were affected much more adversely than instructional expenditures. Instructional expenditures were maintained in most cases. In the small number of cases where there were declines, these were either economically small and/or statistically not different from zero.

A caveat relating to our analysis is worth noting here. We use a trend shift analysis; that is we look for a shift (intercept or trend) in various school finance indicators from their pre-existing trends just after the recession (2008-09) and during the federal stimulus period (2009-10). We attribute any such shifts in the year just after recession to the recession and any shift in the following year to a combination of recession and federal stimulus. Note, though that if there were common shocks during these two years that would affect our financial indicators independent of the recession, then our estimates would be biased by these. So, we look upon our estimates as strongly suggestive, but not necessarily causal. This caveat should be kept in mind while interpreting the results of this paper. However, we did an extensive research to look for such potentially confounding "common shocks"---we did not find any evidence of such shocks. Moreover, the Great Recession was not a marginal shock, rather it was a highly discontinuous shock. So, even if there were small shocks during these two years, they would be by far

overpowered by as gargantuan a shock as the Great Recession, and the effects obtained are likely to capture its effects.

This paper is related to the literature that studies school district funding. Stiefel and Schwartz (2011), analyzing school finance patterns in New York City during the Bloomberg era, find evidence of large increases in per pupil revenue during this period. Rubenstein et al. (2007), studying schools in NYC, Cleveland, and Columbus, find that higher poverty schools received more funding per student. Baker (2009), studying schools in Texas and Ohio, finds that resources vary according to student needs within districts. Thus while there is research on school funding and resource allocation within and across districts, there is no literature thus far that seeks to examine how school finances and resource allocation are affected under recession pressures. This paper takes a step forward in that direction. Understanding how districts fared during the financial downturn promise to improve current understanding of schools' financial situations and aid future policy decisions.

2 Background

2.1 Financial Crisis and Federal Stimulus Funding

The bursting of the housing bubble and the onset of the recession in 2007 strained state and local government finances as their revenues slowed. The housing market began slowing in 2005 and 2006, as foreclosures increased. In 2007, as dozens of subprime lenders declared bankruptcy and credit for home equity loans dried up, the housing market crashed. According to the CoreLogic Home Price Index, the U.S. as a whole saw a 29.4% drop in housing values from October 2006, before the crash, to February 2009, right before the market started to recover. The decline in New York was less drastic, at 13.5%. Local governments, which often receive a large percentage of funds from property taxes, faced falling revenues due to declines in the housing market. Due

to the periodic nature of property value assessments, the full effect of the housing bubble on local revenue is likely not complete.

State governments also saw a decline in funds due to lowered income taxes revenues as a result of increased unemployment and lowered sales tax revenues from lower consumption. New York's unemployment rate increased from 4.6% in 2006 to 8.5% in 2010, faring better than the nation which had the same unemployment rate in 2006 and 9.6% unemployment in 2010[6]. State tax revenues fell 8% in New York from 2007 to 2009, similar to the national state average which declined 9%.

The financial downturn limited state and local government's ability to fund school districts and resulted in difficult budgetary decisions. According to the Center on Budget and Policy Priorities, at least 46 states and the District of Columbia worked to close budget shortfalls entering the 2011 fiscal year. Most states spend at least half of their budget on education, resulting in serious implications for K-12 education. To stave off serious budget cuts, the federal government allocated $100 billion to states for education through the American Recovery and Reinvestment Act (ARRA). The funds were available for the 2009-10 school year through the fall of the 2011.

The ARRA money lessened the impact of decreased state and local funding on school budgets. ARRA provided approximately $5.6 billion to New York Schools[7]. Districts were directed to use the ARRA funds to save and create jobs, to boost student achievement and bridge student achievement gaps, and to ensure transparency, reporting, and accountability. The funds were distributed using the states' formulas for distributing education aid. New York won an additional $700 million from the Race to the Top Competition for the 2010-11 school year to fall of 2014.

[6] Bureau of Labor Statistics, Haver Analytics

[7] These estimates include State Fiscal Stabilization Funds, Title I Part A – Supporting Low-Income Schools, IDEA Grants, Part B & C – Improving Special Education Programs, and Education Technology Grants. This number does not include competitive grants such as Race to the Top. Source: http://www2.ed.gov/policy/gen/leg/recovery/state-fact-sheets/index.html

2.2 Budget Cuts

When faced with tight budgets, school districts tend to trim spending that does not affect core subjects (Cavanagh 2011). Common cuts include extracurricular activities, art and music programs, maintenance, purchases, and transportation, as well as delaying equipment upgrades. After these initial cuts, more severe options are visited, such as increased class size and decreased staff, instruction hours, benefits, professional development, and bonuses. It would be interesting to see if this pattern was evidenced during the Great Recession period.

2.3 School Funding Overview

Funding for public schools comes from three main sources, the federal government, state aid, and local revenues. Prior to the financial crisis in the 2007-08 school year, New York State districts received approximately 3% of their funding from federal aid, 40% from the state, and 57% from local revenue. By 2009-10, reliance on federal aid increased to approximately 7% and the percent of aid from state and local sources fell to 38% and 55% respectively. The majority of federal school aid goes to Title I funding to support low-income student and funding for students with disabilities. In New York, the State General Fund, financed mostly by state income and sales taxes, contributes approximately 68% of state aid. The School Tax Relief Program (STAR), which provides state-funded property tax relief for homeowners, contributes approximately 20% to state aid. The remaining 12% is funded from the Special Revenue Fund account supported by lottery receipts (The State Department of Education, 2009). State aid is determined based on a variety of characteristics of the school districts, including enrollment, varying regional labor market costs, low income students, limited English proficient students, and income wealth of the district.

In New York, 90% of local revenues come from residential and commercial property tax revenue. The largest school districts, consisting of Buffalo, New York City, Rochester, Syracuse,

and Yonkers, fund their schools from their city's budgets instead of through property tax revenue. Philanthropic dollars contribute a very small fraction of some school districts' budgets. In New York City, the Fund for Public Schools, foundations, alumni, parent organizations, and private philanthropists provide funding, typically for trials of education programs. These outside funds contributed only 1.3% of NYC school funding in 2007 (Steifel and Schwartz 2010).

New York City, which comprises about half of the New York State student population, has undergone important funding policy changes in recent years. The Children's First initiative, which started in 2003, increased teacher salaries and financial incentives to work in high-need schools and subject areas with teacher shortages (Goertz et. al 2011). In 2008, the Fair Student Funding program aimed to improve the distribution of resources by allocating school funding based on the number of low income, special education, low achieving, and English Language Learners. According to some, but not all measures, this policy resulted in increased spending on students with greater needs (Stiefel and Schwartz 2011).

3 Data

We utilize school district financial report (ST3) data from the New York Office of the State Comptroller. The data covers the 2004-05 to 2009-10 school years and the 714 school districts of New York State. Student racial demographic data and the percent of students on free or reduced lunch from 2004-05 to 2009-10 are available from the New York State Department of Education.

The school finance dataset includes revenue, debt, expenditure, and enrollment information, as well as components of revenue and expenditure. We have data on total revenue, as well as the amount of aid received from federal, state, and local aid as well as property tax revenue. The dataset includes total debt outstanding at the end of the year and the total fall student enrollment, including charter schools. In addition to total school district expenditure, detailed data are

available on the various components of expenditure: instructional expenditure, instructional support expenditure, student services, transportation, and utilities and maintenance. Instructional expenditure includes teachers' salaries, instructional training, curriculum development, equipment and textbooks, and other teaching-related expenditures. Instructional support expenditures contain school food programs, school library and audiovisual programs, employment preparation instruction, and computer assisted instruction. Social work, counseling, guidance, and health services comprise student services expenditures. Transportation expenditures include all student transport costs, and student activities expenditures include all extra-curricular activities and sports. Utility and maintenance expenses include operating expenses such as supplies, utilities, insurance, professional and technical services, rent or lease costs, operation, and maintenance. This paper first analyzes the impact of the crisis and federal stimulus across all districts. Then it delves deeper, and examines heterogeneities by district size, poverty status, urban status, and metropolitan region. We divide the districts into three groups based on size in 2007-08 (the immediate pre-recession year) ---the school districts in the top 75th percentile (3,230 students or more) of the student enrollment distribution are referred to as large districts. School districts in the bottom 25th percentile (813 students or less) are defined as small districts. Schools in the middle percentile constitute the medium sized districts.

We categorize districts in to high poverty, medium poverty and low poverty districts based on the distribution of percent of free/reduced price lunch students in school districts in the 2007-08 school year. Districts that fall within the top 75th percentile (that is, have 42% or more free/reduced price lunch students) are categorized as high poverty districts. We categorize the bottom 25th percentile, with 13% or fewer students in the lunch program, as low poverty. The rest of the districts are referred to as medium poverty.

We use the National Center for Education Statistics Common Core or Data (CCD) designations of urban status in 2007-2008 to categorize districts as urban, suburban, or rural. Districts inside

urbanized areas or inside urban clusters less than 35 miles from urbanized areas are categorized as urban. Territories outside principal cities and towns close to urbanized areas comprise the suburban districts. NCES categorizes areas with fewer than 2,500 inhabitants outside of an urban area as rural.

We also perform heterogeneity analysis by metropolitan areas. We consider the following metro areas: Albany, Buffalo, Rochester, Syracuse, Ithaca, New York City, and Nassau. The first four are Metropolitan Statistical Areas (MSA). Since Ithaca's MSA has only a few school districts, we study the Binghamton, Cortland, Elmira, and Ithaca MSAs together and refer to them as the Ithaca Metropolitan Area. While New York City and Nassau County comprise one MSA, due to their differences, we study them separately as the New York – White Plains, and Nassau County Metropolitan Divisions. We utilize ArcGIS mapping technology to visualize changes in financial variables spatially. The district and MSA shape files come from the Census.

4 Methods

We analyze whether the recession and federal stimulus periods were associated with shifts in various school finance indicators from their pre-existing trends. We use the following specification for this purpose:

$$Y_{it} = \alpha_0 + \alpha_1 t + \alpha_2 v_1 + \alpha_3 v_2 + \alpha_4 X_{it} + f_i + \varepsilon_{it} \quad (1)$$

where Y_{it} is each financial indicator for school district *i* in year *t; t* is a time trend variable which equals 0 in the immediate pre-recession year (2007-08)[8] and increments by 1 for each subsequent year and decreases by 1 for each previous year; v_1 is the recession dummy, $v_1 = 1$ if year >2008 and 0 otherwise; v_2 is the stimulus dummy, $v_2 = 1$ if year >2009 and 0 otherwise; X_{it}

[8] In the rest of the paper, we refer to school years by the year corresponding to the spring semester.

represents the school district demographic characteristics---racial composition and percentage of students eligible for free or reduced price lunches; f_i denotes district fixed effects.

The coefficient on the time trend variable, α_1, denotes the overall trend in the financial indicator in the pre-recession period. The intercept shift coefficient, α_2, denotes whether there was an intercept shift (from the pre-recession trend) in the first year after recession; α_2 captures any additional shift in 2009-10, the year ARRA was implemented and school districts received an infusion of funds under the federal stimulus.

While the above specification models the shifts as intercept shifts, we also consider an alternative specification that models the shifts as trend shifts.

$$Y_{it} = \beta_0 + \beta_1 t + \beta_2 (v_1 * t) + \beta_3 (v_2 * t) + \beta_4 X_{ii} + f_i + \varepsilon_{it} \quad (2)$$

where β_2 captures any shift in trend with recession; β_3 captures any additional shift in trend with federal stimulus funds. The coefficient on the interaction term $(v_1 * t)$ captures the trend shift immediately following the recession and $(v_2 * t)$ captures any additional trend shift due to the stimulus in the 2009-10 school year.

While we estimate both specifications and the results are qualitatively similar, we prefer the first specification. This is because, due to data availability constraints, the latter specification estimates the latter trend shift coefficient (β_3) from a single year of data (2009-10) and estimation of a differential trend using one year of data may not be robust. Consequently, results reported in the paper are from the intercept shift model (1). Results from estimation of specification (2) are not reported for lack of space, but are available on request. We inflation adjust all financial variables to 2009 dollars. All regressions reported in the paper include district

fixed effects, but results from OLS estimations are similar. Demographic controls and robust standard errors are used in all regressions. The results are robust, though, to the inclusion or exclusion of covariates.

Note that the post-recession shifts in the above regressions represent actual shifts of the corresponding inflation adjusted financial variables. However, for easier interpretation and for comparison of the effects across various variables we reduce these into percent shift terms. In this method, the effects are expressed as percentage of the pre-recession base of the corresponding dependent variable. This not only enables us to compare the effects across variables, but also gives an indication of the size of the effect. In our discussion, we will focus on the discussion of two percentage shifts---percentage shift immediately following the recession (in 2008-09) and percentage shift in 2009-10 (computed by expressing the sum of the two effects α_2 and α_3 for specification (1) as a percent of the pre-recession base)[9]. The latter captures the combined effect of the recession and the federal stimulus in 2009-10.

An important caveat relating to the above strategies should be mentioned here. The estimates from these specifications capture shifts from the pre-existing trend of the corresponding financial variables. However, these specifications do not control for any common shock(s) that might have taken place in the two years following the recession that might have also affected these financial variables. To the extent that there were such common shocks that would have affected our outcomes even otherwise, our estimates would be biased by these. As a result, we would not like to portray these estimates as causal effects, but as effects that are strongly suggestive of the effects of recession and stimulus on various school finance variables. However, we did some research to assess the presence of common shocks (such as policy changes etc.) that might affect

[9] For specification 2, the percent trend shift in 2009-10 is obtained by expressing the sum of the two effects β_2 and β_3 for specification 2 as a percent of the pre-recession base.

our outcome variables of interest independently of the recession and stimulus. To the best of our knowledge, we are not aware of any such common shocks during this period.

5 Results

Figure 1 shows trends in various aggregate financial variables. The dotted vertical line marks the immediate pre-recession (2007-08) school year. There is not much evidence of shifts in per pupil expenditure or revenues. As expected, the federal revenue per pupil as well as the federal share in total revenue shows a steep increase in 2009-10, the year of the federal stimulus funding. State aid per pupil, as well as the share of state aid, exhibit a decline in 2009-10 as the federal stimulus came in. Local revenue per pupil, as well as its share, declined after the recession.

Figure 2 focuses on the various components of expenditure. There is no evidence of effects on instructional expenditure, however several non-instruction categories (transportation, student services per pupil, student activities per pupil) show some flattening after the recession. Next we investigate whether these patterns hold up in a more formal trend shift analysis.

Table 1 presents results from estimation of specification 1. The setup of each table in the paper is similar. The top part of each panel of all tables presents the percent shifts, while the lower part presents the regression estimations from which these were derived from. Our discussion of results will focus on these percent shifts. The first row presents the percent shift in 2008-09 and captures the effect of the recession. The second row gives the percent shift in 2009-10 and captures the combined effect of federal stimulus funding and the recession. For ease of comparison and a visual effect, these percent shifts are also presented in histograms.

Table 1 and Figure 4 Panel A show that, overall, New York districts maintained the trend of total revenue and total expenditure per pupil during the recession. Districts increasingly used debt to maintain spending. The largest five districts receive funding from their city budgets to build and maintain facilities. All other districts issue debt in the form of bonds to finance school and

facilities construction, maintenance, and improvements. Debt can also be used to purchase equipment, pay wages and necessary school expenses, build bus garages, equipping libraries, and refund outstanding bonded indebtedness[10], but the overwhelming use of bonds is for construction. Since New York State provides aid to projects financed with debt and not to projects above $100,000 paid in cash, districts have the incentive to issue bonds. Except the largest five, all districts need voter approval to issue bonds that exceed the debt limit[11]. While the financial situation made it politically unpopular to request that voters approve exceeding the debt limit, prior plans for projects, pressure to continue with projects, and debt issuance below the limit resulted in increased debt levels.

As Table 2 and Figure 4 Panel B show, the composition of revenue changed following recession. In 2008-09, local revenues shifted downwards and state revenues filled in the gap by shifting upwards. Federal aid per pupil more than doubled in the 2009-10 school year relative to the pre-recession trend. This coincided with downward shifts in state and local revenues per pupil. Thus, there seems to have been an interesting substitution of funds with the state cutting back as the federal stimulus flowed in. The increased reliance on federal revenue is also evidenced by the maps in Figure 3. In the pre-recession period, there was quite some variation across districts in their federal contributions to revenue---majority of the districts received between 0% - 6% of their revenue from federal sources in 2007-08 as shown in Figure 3A. On average New York districts received 3% of their revenue from federal sources in 2007-08. However, Figure 3B shows they received over 7% of their revenue from federal sources after the start of the ARRA money in 2009-10. This uptick and increased reliance on federal aid is due to the fiscal stimulus, which sought to prevent serious budget cuts given falling state and local revenues. While these changes occurred, total enrollment remained stable.

[10] "New York State Legislature" New York State Constitution(Referenced Statute 416-7)
[11] "New York State Legislature" New York State Constitution(Referenced Statute 416-1)

While overall expenditure remained stable, the composition of expenditure shows interesting changes. Districts maintained instructional and instructional support expenditures per pupil.[12] Since classroom expenditures and teachers most directly affect student learning, they are likely undesirable targets for budget cuts. Additionally, teacher salaries comprise a large portion of instructional spending and reducing expenditures in these areas is difficult since it involves renegotiating contracts or layoffs.

The non-instructional expenditures, especially transportation, utilities and maintenance, and student activities faced cuts during the recession. Student services also trended downwards, but not statistically significantly.

5.1 Examining the Heterogeneity of Effects by Poverty Status

In this section, we investigate whether there were variations in effects across different poverty levels. Tables 3-4 and Figures 5A-5B present the results. As Table 3 and Figure 5A show, low poverty (alternatively referred to as "affluent" in the paper) districts experienced downward shifts in both total expenditure and revenue per pupil. These districts also issued less debt per pupil. The medium and high poverty districts fared better, with the medium poverty districts experiencing a statistically significant upward shift in total expenditure per pupil. High and medium poverty districts also issued more debt to maintain (or boost) their spending levels.

The affluent districts experienced the largest downward intercept shifts in state and local revenue, as well as property taxes per pupil. It is expected that affluent districts would face the largest declines in state revenue since states typically try to compensate the higher poverty districts first. The declines in property taxes and local revenue per pupil in the affluent districts are partially due to their higher pre-recession trends and bases. The low poverty districts also received the largest positive shift in federal revenue, but all types of districts received substantial

[12] Note that while some of the percent shifts are negative, they are small and never statistically different from zero.

increases in federal revenue after ARRA began. The largest positive shift in the low poverty districts, to some extent, is a consequence of the fact that they had considerably lower pre-recession trend in comparison to high poverty and medium poverty districts.

Total enrollment in low poverty districts experienced a downward shift during the recession. Families might have moved to less affluent school districts if they could no longer afford their current home or apartment. Additionally, families with adequate resources might have decided to move their children to private school if they noticed budget cuts in their public school.

As Table 4 and Figure 5B show, instruction did not experience declines, except in the low poverty districts (and this was statistically significant only in 2008-09). In contrast, cuts to non-instructional spending occurred and were much more widespread, with transportation, and utilities and maintenance being hit the worst. Medium and low poverty districts were especially affected.

5.2 Examining Spatial Heterogeneities – Were there Variations Across Metropolitan Areas?

Next, we investigate whether there were variations in experiences across metropolitan areas. The results are presented in Tables 5-6 and Figures 6A-6B. As seen above, overall, there was not much change in total expenditure and revenue per pupil, but heterogeneities exist across geographic areas. New York City and Nassau's Metropolitan Divisions experienced significant downward shifts in total expenditure and revenue while the other metro areas increased funding or remained on trend.[13] All metropolitan areas maintained or increased instructional spending, except Nassau, where instructional spending shifted downwards. Non-instructional spending (such as transportation, utilities and maintenance) was also hurt the most in Nassau.

[13] An exception is Albany which experienced declines in total revenue per pupil, though not in total expenditure per pupil

5.3 Examining the Heterogeneity of Effects by District Size

Heterogeneities in patterns exist across different sized districts as well. As Table 7 and Figure 7A show, large districts experienced downward shifts in total expenditure and revenue per pupil, while medium and small districts remained on trend. In 2009-10, federal revenue shifted upwards the most in large districts, and they also experienced the largest downward shifts in state revenue that year. As Table 8 and Figure 7B show, all districts maintained or increased instructional spending. Large and medium districts experienced statistically significant downward shifts in transportation and utilities and maintenance spending.

5.4 Did Urbanicity Matter?

Urban, suburban, and rural districts experienced varying financial trends. As Table 9 and Figure 8A show, rural districts fared the best for total expenditures per pupil, although the shift was not statistically significant. Urban districts' total revenue per pupil shows a statistically significant downward shift in 2009-10. Suburban districts received the biggest upward shifts in federal revenue and the largest downward shift in state revenue. Property taxes and local revenue shifted downwards the most in urban districts.

As Table 10 and Figure 8B show, all district types maintained instructional spending[14], but urban and rural districts saw the largest downward shifts in non-instructional spending.

5.5 The Big Five New York Districts

The largest five districts in New York State, commonly referred to as the "Big Five," are of particular interest due to the large number of students they serve. New York City School District

[14] While some of the shifts are negative, they are never statistically different from zero.

alone serves 35.9% of New York State's public school students[15]. The Big Five districts combined educate 40.0% of New York's students[16].

To shed some light into how school finance indicators evolved in these districts following the recession, we estimate the specifications above separately for each of the Big 5 districts. A word of caution is in order here, though. Since our data is school district level data, each of these regressions involve only six data points (corresponding to the six years), and hence variations used in these regressions are very small. In spite of that we report the results since we believe they are informative, and the standard errors while big (as might be expected) are not unreasonably big. However, this caveat should be kept in mind while interpreting these results.

As Tables 11-12 and Figure 9 show, financial trends differed across the Big Five school districts. Buffalo and Rochester's total expenditure and revenue exhibit upward shifts in 2008-09, while Yonkers' expenditures shifted downwards. The other districts showed no significant changes in total revenue and expenditure. Rochester and Syracuse had the largest upward shifts in federal revenue in 2010 with the infusion of federal stimulus funds. None of the Big Five districts (except Buffalo) show downwards shifts in state revenue and none of the Big Five's local revenues trended downwards significantly, except New York City. This contrasts to the state overall, which saw downward shifts in both in 2009-10.

New York City and Yonkers had statistically significant downward shifts in instructional expenditures in both years unlike the other Big Five districts. Syracuse cut student services, and Yonkers and Rochester show statistically significant declines in transportation spending. Syracuse spent more than the trend on student activities, while Yonkers' spending fell below trend. Unlike the state overall, the Big Five maintained utilities and maintenance spending. Overall, Yonkers and New York City were hit the worst among the Big Five districts.

[15] Authors' calculations using NCES CCD 2009 data.
[16] Authors' calculations using NCES CCD 2009 data.

6 Conclusion

This paper investigates school finance patterns in New York during the recession and federal stimulus period. We find no evidence of a shift in total school district revenue or expenditure during the Great Recession. In contrast, the composition of revenue changed, --- reliance on federal revenue increased dramatically, while shares of state and local revenue fell when ARRA funding began. The federal stimulus and increased debt issuance appear to have helped total expenditure and instructional expenditures in the 2009-10 school year. While total expenditure does not show a shift, the composition of total expenditure changed in interesting ways. Instructional expenditure (that includes teacher salaries and other spending that directly impacts classroom learning) was maintained while declines occurred in non-instructional expenditures, especially in transportation, utilities, and maintenance. Thus districts seem to have protected expenditures that matter most towards student learning, while non-instruction categories suffered.

In addition to these overall trends, our analysis revealed interesting variations within the state, by poverty, metro areas, size, and urban status. Low poverty districts were the worst affected both in terms of revenue and expenditure, as well as instructional and non-instructional expenditures. Studying patterns by metro areas revealed that New York, and especially Nassau were badly hit. Studying variations in size, we find that large districts sustained the largest losses in terms of both revenue and expenditure. On the other hand, urban districts suffered the largest declines in revenue.

Since the Big Five districts are of special interest in New York due to their size, we study variations in school finance patterns across these districts in the post-recession period as well. Of the Big 5, New York and Yonkers fared the worst.

With the ARRA funds drying up, a valid question here is how we might expect New York school districts to fare in the near future. It is worth noting here that New York used more than 75% of its ARRA funding in the 2009-10 school year. Considering the slow recovery of economic activity and employment in the state, state and local revenues will likely continue below trend. The cessation of the federal stimulus funding and lower than trend growth of state and local revenues could lead to more significant downward pressures on revenues and expenditures, and various components of expenditures. In fact, some of this is already being evidenced. New York state faced an approximate 1% decline in teachers in 2009-10 during the ARRA funding period (Roza et. al 2010), but almost 3% of teachers were laid off in 2011-12 school year. This does not include the 4,000 teacher positions that were left unfilled and the over 4% of school administrators that were laid off in the same year (The New York State Council of School Superintendents 2011). In total, roughly 11,000 teacher positions were eliminated, accounting for approximately 4.7% of teachers[17]. Districts cut other expenses in a variety of ways. For example, New York City discontinued a trial teacher bonuses program and cut the central administrative budget by 18 percent in 2010-11, among other cuts (Klein 2010). Thus, if the economy does not recover, school districts would likely face hard decisions ahead, that might involve cutting into the more salient instructional expenditure category, and this might have unpleasant repercussions on student learning and human capital formation. The findings of this study promise to facilitate our understanding of how recessions affect schools, and the role policy can play to mitigate the consequences.

[17] Authors' calculations based on (The New York State Council of School Superintendents 2011).

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Table 1: Examining Patterns in Revenues and Expenditures Per Pupil During the Financial Crisis and Federal Stimulus Period (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil FE	Total Revenue Per Pupil FE	Tot Debt Outstanding Per Pupil FE	Federal Revenue Per Pupil FE	State Revenue Per Pupil FE
	(1)	(2)	(3)	(4)	(5)
% Shift in 2008-09	-0.410	-0.743	6.326***	5.674	3.377***
% Shift in 2009-10	1.985	-2.348	14.273***	126.844***	-6.285***
Pre-Recession Base	23580.53	22724.17	12800.71	705.01	7883.87
Trend	940.3***	1035.8***	117.5	-4.3	412.5***
	(125.4)	(120.0)	(146.7)	(12.8)	(14.0)
Recession	-96.7	-168.9	809.8***	40.0	266.3***
	(310.8)	(275.3)	(290.4)	(42.9)	(50.2)
Stimulus	564.7	-364.7	1017.3***	854.3***	-761.7***
	(369.4)	(317.7)	(359.1)	(63.6)	(59.3)
Observations	4146	4146	4068	4146	4146
R-squared	0.88	0.91	0.77	0.85	0.96

Panel B	Property Taxes Per Pupil FE	Local Revenue Per Pupil FE	% Federal Revenue FE	% State Revenue FE	% Local Revenue FE	Total Students FE
	(6)	(7)	(8)	(9)	(10)	(11)
% Shift in 2008-09	-2.517*	-5.060***	-2.134	2.664***	-3.512***	-0.163
% Shift in 2009-10	-2.467	-6.673***	126.798***	-5.509***	-3.154***	1.151
Pre-Recession Base	10172.06	13914.50	3.09	39.83	56.00	3889.72
Trend	420.400***	629.632***	-0.229***	0.402***	-0.100***	-37.653***
	(92.307)	(112.738)	(0.018)	(0.037)	(0.038)	(9.337)
Recession	-256.041*	-704.125***	-0.066	1.061***	-1.967***	-6.342
	(138.652)	(222.578)	(0.053)	(0.112)	(0.116)	(30.835)
Stimulus	5.074	-224.341	3.987***	-3.255***	0.201*	51.128
	(185.666)	(245.825)	(0.070)	(0.116)	(0.109)	(38.394)
Observations	4146	4146	4146	4146	4146	4146
R-squared	0.96	0.94	0.90	0.99	0.99	1.00

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 2: Examining Patterns in the Composition of Expenditures During the Financial Crisis and Federal Stimulus Period (Using Intercept Shifts)

Panel A	Instructional Expenditures Per Pupil FE (1)	Instructional Support Per Pupil FE (2)	Student Services Per Pupil FE (3)
% Shift in 2008-09	-0.245	-0.109	-1.091
% Shift in 2009-10	1.131	-0.785	-0.980
Pre-Recession Base	11064.65	886.47	652.02
Trend	334.9***	28.8***	17.2***
	(59.6)	(3.2)	(4.7)
Recession	-27.2	-1.0	-7.1
	(123.2)	(8.7)	(12.1)
Stimulus	152.3	-6.0	0.7
	(163.0)	(14.5)	(13.6)
Observations	4146	4146	4146
R-squared	0.92	0.88	0.91

Panel B	Transportation Per Pupil FE (4)	Student Activities Per Pupil FE (5)	Utilities & Maintenance Spending Per Pupil FE (6)
% Shift in 2008-09	-4.130	0.151	-3.760**
% Shift in 2009-10	-8.753**	-1.676*	-5.188**
Pre-Recession Base	1198.24	264.17	5692.08
Trend	76.9***	9.7***	272.3***
	(20.3)	(0.6)	(63.6)
Recession	-49.5	0.4	-214.0**
	(43.5)	(1.8)	(98.9)
Stimulus	-55.4	-4.8**	-81.2
	(46.8)	(2.0)	(117.9)
Observations	4146	4146	4146
R-squared	0.83	0.96	0.95

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 3: Examining Heterogeneities in Revenues and Expenditures Per Pupil by School District Poverty Status (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil			Total Revenue Per Pupil			Tot Debt Outstanding Per Pupil		
	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	1.920	2.095**	-6.865**	4.238	-0.436	-5.986***	12.427**	9.902***	-8.914*
% Shift in 2009-10	5.143	6.283***	-7.915*	1.762	-0.974	-8.319**	26.874***	18.262***	-12.059*
Pre-Recession Base	24767.66	20573.85	27982.58	23522.61	20020.82	26952.52	14774.60	11979.29	12346.14
Trend	1382.9***	666.8***	1156.4***	1241.7***	792.2***	1302.4***	314.8	-23.6	553.2
	(245.0)	(65.1)	(391.2)	(254.5)	(28.7)	(349.1)	(288.1)	(95.5)	(406.6)
Recession	475.6	430.9**	-1921.0**	996.9	-87.3	-1613.3***	1836.1**	1186.2***	-1100.5*
	(809.9)	(198.2)	(804.6)	(870.9)	(81.7)	(570.6)	(769.4)	(305.5)	(568.3)
Stimulus	798.1	861.8***	-293.8	-582.4	-107.7	-628.9	2134.4**	1001.5**	-388.3
	(915.1)	(300.5)	(901.3)	(926.8)	(99.3)	(739.5)	(912.2)	(434.9)	(574.6)
Observations	1059	2010	1077	1059	2010	1077	1044	1991	1033
R-squared	0.84	0.85	0.90	0.82	0.97	0.93	0.73	0.75	0.88

Panel B	Federal Revenue Per Pupil			State Revenue Per Pupil			Property Taxes Per Pupil			Local Revenue Per Pupil		
	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
% Shift in 2008-09	16.626	-4.994**	-5.926	5.186***	3.040***	1.632	1.333	-0.973	-5.242**	-1.195	-4.784***	-8.111***
% Shift in 2009-10	95.510***	148.635***	165.429***	-2.671*	-6.505***	-16.401***	3.453	0.250	-7.600*	-4.130	-5.371***	-10.281***
Pre-Recession Base	1234.92	596.19	374.71	10185.97	8208.87	3636.55	6039.86	7838.55	18222.98	11232.67	10337.76	22096.86
Trend	34.5	-13.5***	1.4	555.9***	431.5***	236.1***	150.9***	257.9***	940.8***	644.1***	381.2***	1067.5***
	(49.3)	(4.9)	(9.7)	(37.1)	(15.0)	(23.5)	(52.5)	(23.1)	(307.5)	(205.1)	(23.4)	(346.2)
Recession	205.3	-29.8**	-22.2	528.2***	249.5***	59.4	80.5	-76.3	-955.3**	-134.2	-494.6***	-1792.3***
	(162.2)	(13.5)	(27.3)	(152.8)	(43.0)	(69.9)	(140.0)	(68.8)	(476.6)	(632.6)	(71.8)	(554.1)
Stimulus	974.2***	915.9***	642.1***	-800.2***	-783.5***	-655.8***	128.0	95.9	-429.6	-329.7	-60.7	-479.5
	(241.4)	(17.7)	(38.0)	(181.3)	(52.5)	(59.9)	(190.6)	(80.9)	(669.5)	(589.1)	(83.6)	(708.2)
Observations	1059	2010	1077	1059	2010	1077	1059	2010	1077	1059	2010	1077
R-squared	0.85	0.89	0.68	0.92	0.96	0.93	0.97	0.98	0.94	0.89	0.98	0.94

Panel C	% Federal Revenue			% State Revenue			% Local Revenue			Total Students		
	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE
	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
% Shift in 2008-09	-2.162	-2.316	-0.862	2.034***	2.721***	4.680***	-5.463***	-4.190***	-1.831***	-0.225	-0.337	-0.744***
% Shift in 2009-10	84.195***	147.259***	185.544***	-3.673***	-5.507***	-9.984***	-5.058***	-4.044***	-1.257***	2.187	-0.316	-1.440***
Pre-Recession Base	4.77	3.04	1.51	51.07	45.20	18.51	42.45	50.61	79.66	7939.17	2000.55	3288.76
Trend	-0.4***	-0.2***	-0.1**	0.5***	0.4***	0.3***	0.0	-0.1	-0.2***	-81.9***	-26.9***	-3.6
	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(29.7)	(1.6)	(2.5)
Recession	-0.1	-0.1	-0.0	1.0***	1.2***	0.9***	-2.3***	-2.1***	-1.5***	-17.9	-6.8	-24.5***
	(0.1)	(0.1)	(0.1)	(0.3)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(118.4)	(4.9)	(6.9)
Stimulus	4.1***	4.5***	2.8***	-2.9***	-3.7***	-2.7***	0.2	0.1	0.5**	191.5	0.4	-22.9**
	(0.2)	(0.1)	(0.1)	(0.3)	(0.2)	(0.2)	(0.3)	(0.1)	(0.2)	(133.7)	(6.4)	(9.6)
Observations	1059	2010	1077	1059	2010	1077	1059	2010	1077	1059	2010	1077
R-squared	0.89	0.88	0.75	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 4: Examining Heterogeneities in the Composition of Expenditures by School District Poverty Status (Using Intercept Shifts)

Panel A	Instructional Expenditures Per Pupil			Instructional Support Per Pupil			Student Services Per Pupil		
	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	2.663	0.255	-3.990*	-0.164	0.879	-2.308	0.062	1.554*	-5.020
% Shift in 2009-10	5.126	1.940**	-3.954	-1.149	0.918	-4.332	-2.128	2.371*	-3.781
Pre-Recession Base	11341.13	9390.48	13902.44	924.67	863.43	890.95	719.85	516.88	835.32
Trend	455.4***	214.3***	448.8**	26.2***	29.0***	32.3***	37.1***	10.5***	21.3**
	(106.3)	(17.8)	(188.9)	(5.3)	(2.9)	(8.4)	(13.2)	(1.4)	(10.1)
Recession	302.0	23.9	-554.6*	-1.5	7.6	-20.6	0.4	8.0*	-41.9
	(316.7)	(48.6)	(335.0)	(16.7)	(9.0)	(24.4)	(36.0)	(4.5)	(29.2)
Stimulus	279.3	158.2**	5.0	-9.1	0.3	-18.0	-15.8	4.2	10.3
	(474.8)	(71.0)	(395.0)	(17.5)	(10.8)	(43.7)	(46.3)	(5.5)	(22.7)
Observations	1059	2010	1077	1059	2010	1077	1059	2010	1077
R-squared	0.86	0.95	0.94	0.85	0.91	0.88	0.88	0.96	0.95

Panel B	Transportation Per Pupil			Student Activities Per Pupil			Utilities & Maintenance Spending Per Pupil		
	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE	High FE	Medium FE	Low FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
% Shift in 2008-09	9.609	-4.884***	-15.356***	0.554	-0.468	0.858	0.138	-2.265***	-8.919**
% Shift in 2009-10	-1.169	-5.676***	-22.873**	-1.684	-2.820**	-0.628	0.854	-2.756**	-13.804**
Pre-Recession Base	1119.58	1108.20	1444.92	218.07	262.53	313.60	5703.77	4715.30	7498.22
Trend	62.6**	44.4***	144.6**	7.1***	10.9***	10.5***	247.3***	180.5***	444.2**
	(27.0)	(3.4)	(64.7)	(1.5)	(0.7)	(1.3)	(40.8)	(14.7)	(209.1)
Recession	107.6	-54.1***	-221.9***	1.2	-1.2	2.7	7.9	-106.8***	-668.8**
	(144.7)	(11.1)	(79.7)	(3.5)	(2.4)	(4.2)	(117.0)	(38.7)	(340.2)
Stimulus	-120.7	-8.8	-108.6	-4.9	-6.2**	-4.7	40.9	-23.1	-366.2
	(145.8)	(11.8)	(103.3)	(3.4)	(2.6)	(4.6)	(178.1)	(51.6)	(422.0)
Observations	1059	2010	1077	1059	2010	1077	1059	2010	1077
R-squared	0.66	0.93	0.89	0.93	0.95	0.97	0.95	0.96	0.95

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 5: Examining Heterogeneities in Revenues and Expenditures Per Pupil by Metropolitan Area (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil				Total Revenue Per Pupil				Tot Debt Outstanding Per Pupil			
	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
% Shift in 2008-09	-3.833	5.549**	-3.669*	2.819	-3.612	1.107	-2.687***	0.941	9.312	13.871**	-2.784	3.931
% Shift in 2009-10	2.727	4.925	-1.410	9.586**	-6.001	0.752	-3.611*	1.471	17.365	16.579**	4.751	9.125
Pre-Recession Base	22083.93	17216.19	26712.93	18601.81	21281.21	16866.00	25674.04	17938.29	12955.70	10143.21	14172.45	12181.52
Trend	993.9**	409.9***	657.8***	568.5***	1017.4**	481.1***	859.7***	665.1***	197.5	-117.6	243.6	479.5
	(436.4)	(116.3)	(201.8)	(175.6)	(393.0)	(37.6)	(70.8)	(57.7)	(385.9)	(159.1)	(340.1)	(299.6)
Recession	-846.6	955.3**	-980.1*	524.3	-768.7	186.7	-689.7***	168.8	1206.5	1407.0**	-394.6	478.8
	(988.3)	(474.8)	(540.3)	(490.1)	(789.5)	(130.8)	(221.6)	(161.6)	(1026.6)	(562.6)	(743.7)	(877.1)
Stimulus	602.2	-107.4	603.6	1258.9*	-508.5	-59.9	-237.3	95.0	1043.3	274.7	1067.9	632.7
	(723.4)	(546.6)	(879.0)	(672.5)	(426.3)	(142.0)	(355.2)	(218.2)	(1221.1)	(672.3)	(1339.4)	(1127.0)
Observations	372	252	335	257	372	252	335	257	362	252	332	257
R-squared	0.87	0.72	0.86	0.70	0.91	0.96	0.97	0.95	0.57	0.85	0.67	0.69

Panel B	Federal Revenue Per Pupil				State Revenue Per Pupil				Local Revenue Per Pupil			
	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
% Shift in 2008-09	0.404	5.946	-5.237	-16.511**	4.014**	3.334**	4.479**	4.059***	-10.575	-3.946***	-4.730***	-3.906***
% Shift in 2009-10	156.302***	176.780***	107.012***	121.829***	-6.899**	-3.815**	-9.084***	-3.156*	-13.981	-5.202***	-5.155***	-3.322
Pre-Recession Base	624.42	501.49	492.53	655.54	8037.75	7856.85	3606.76	9417.67	12400.83	8276.54	21456.83	7615.02
Trend	-44.7*	-23.6***	-3.0	-19.4	367.3***	334.5***	162.1***	425.9***	708.9*	166.0***	700.4***	266.4***
	(25.0)	(7.8)	(18.8)	(17.9)	(66.0)	(35.8)	(28.4)	(38.1)	(404.7)	(26.1)	(58.4)	(39.9)
Recession	2.5	29.8	-25.8	-108.2**	322.6**	261.9**	161.6**	382.3***	-1311.4	-326.6***	-1014.9***	-297.4***
	(52.6)	(19.6)	(63.1)	(50.8)	(157.9)	(109.4)	(78.2)	(132.6)	(813.8)	(88.6)	(175.1)	(81.0)
Stimulus	973.5***	856.7***	552.9***	906.9***	-877.1***	-561.7***	-489.2***	-679.5***	-422.4	-104.0	-91.3	44.4
	(88.5)	(29.8)	(39.6)	(56.1)	(154.2)	(125.7)	(91.5)	(156.8)	(453.3)	(100.0)	(284.7)	(121.9)
Observations	372	252	335	257	372	252	335	257	372	252	335	257
R-squared	0.72	0.96	0.83	0.84	0.91	0.98	0.98	0.98	0.91	0.98	0.98	0.98

Panel C	% Federal Revenue				% State Revenue				% Local Revenue			
	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE
	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
% Shift in 2008-09	-0.632	4.909	0.786	-14.159*	3.795***	2.090**	7.290***	2.350***	-5.013***	-4.622***	-2.185***	-4.012***
% Shift in 2009-10	159.706***	175.424***	118.950***	121.285***	-5.161***	-4.417***	-5.132**	-5.011***	-5.229***	-5.748***	-1.761***	-4.162***
Pre-Recession Base	2.98	2.88	1.87	3.56	41.93	45.77	14.50	52.09	53.95	50.01	83.16	42.98
Trend	-0.4***	-0.2***	-0.1	-0.3***	0.2	0.6***	0.2**	0.4***	0.3	-0.3***	-0.1	-0.1
	(0.1)	(0.0)	(0.1)	(0.1)	(0.3)	(0.1)	(0.1)	(0.1)	(0.3)	(0.1)	(0.1)	(0.1)
Recession	-0.0	0.1	0.0	-0.5*	1.6***	1.0**	1.1***	1.2***	-2.7***	-2.3***	-1.8***	-1.7***
	(0.2)	(0.1)	(0.2)	(0.3)	(0.6)	(0.4)	(0.2)	(0.4)	(0.6)	(0.4)	(0.3)	(0.3)
Stimulus	4.8***	4.9***	2.2***	4.8***	-3.8***	-3.0***	-1.8***	-3.8***	-0.1	-0.6	0.4	-0.1
	(0.2)	(0.2)	(0.2)	(0.3)	(0.5)	(0.5)	(0.3)	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)
Observations	372	252	335	257	372	252	335	257	372	252	335	257
R-squared	0.83	0.92	0.87	0.81	0.95	0.98	0.99	0.99	0.96	0.99	0.99	0.99

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 6: Examining Heterogeneities in the Composition of Expenditures by Metropolitan Area (Using Intercept Shifts)

Panel A	Instructional Expenditures Per Pupil				Instructional Support Per Pupil				Student Services Per Pupil			
	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
% Shift in 2008-09	-0.174	2.050	-0.256	0.506	1.879	-0.472	0.036	-0.292	-0.001	1.420	-0.874	0.252
% Shift in 2009-10	3.177	3.861***	2.181	3.595*	-0.528	-1.914	-0.513	-1.014	0.053	3.284	-2.074	0.770
Pre-Recession Base	9934.55	8117.35	12756.70	8182.69	728.39	746.29	924.59	833.33	510.45	450.52	850.07	414.48
Trend	131.7	99.8***	190.9***	165.5***	22.2***	21.2***	11.8	17.5***	10.3*	6.0**	36.0***	7.1*
	(110.5)	(25.1)	(44.1)	(39.7)	(7.5)	(4.7)	(7.9)	(5.8)	(5.5)	(2.3)	(6.1)	(3.9)
Recession	-17.3	166.4	-32.7	41.4	13.7	-3.5	0.3	-2.4	-0.0	6.4	-7.4	1.0
	(182.7)	(104.8)	(140.9)	(119.6)	(17.3)	(15.8)	(23.2)	(20.4)	(11.4)	(6.5)	(14.2)	(10.8)
Stimulus	332.9	147.0	310.9	252.7*	-17.5	-10.8	-5.1	-6.0	0.3	8.4	-10.2	2.1
	(257.9)	(111.5)	(228.7)	(138.7)	(20.6)	(16.8)	(33.4)	(20.5)	(11.5)	(7.2)	(14.4)	(10.7)
Observations	372	252	335	257	372	252	335	257	372	252	335	257
R-squared	0.97	0.91	0.97	0.89	0.78	0.85	0.88	0.93	0.95	0.92	0.92	0.83

Panel B	Transportation Per Pupil				Student Activities Per Pupil				Utilities & Maintenance Spending Per Pupil			
	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE	Albany FE	Buffalo FE	NYC FE	Syracuse FE
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
% Shift in 2008-09	-4.382	-4.865**	-1.485	-1.508	1.017	-0.271	-2.110	3.297*	-2.631	-0.702	-5.250*	-1.896
% Shift in 2009-10	-7.410**	-7.065***	-4.938**	-4.774	-2.058	-2.281	-6.071***	-1.635	1.999	-0.671	-5.226	-2.361
Pre-Recession Base	1117.31	957.95	1260.53	997.57	189.50	197.11	340.14	255.76	5552.79	3937.37	5976.93	3859.24
Trend	46.4***	27.0***	29.7***	38.7***	6.7***	7.1***	13.2***	10.3***	87.8	75.8**	147.0***	119.1***
	(9.3)	(8.1)	(7.4)	(8.4)	(0.9)	(1.2)	(2.3)	(1.5)	(126.5)	(33.0)	(50.2)	(24.1)
Recession	-49.0	-46.6**	-18.7	-15.0	1.9	-0.5	-7.2	8.4*	-146.1	-27.6	-313.8*	-73.2
	(32.8)	(20.0)	(18.0)	(27.1)	(3.3)	(3.2)	(5.2)	(5.0)	(186.9)	(65.7)	(176.4)	(75.1)
Stimulus	-33.8	-21.1	-43.5*	-32.6	-5.8	-4.0	-13.5**	-12.6**	257.0	1.2	1.4	-17.9
	(31.0)	(15.2)	(23.9)	(25.6)	(3.8)	(3.4)	(5.5)	(5.8)	(305.2)	(64.6)	(244.1)	(78.6)
Observations	372	252	335	257	372	252	335	257	372	252	335	257
R-squared	0.90	0.88	0.98	0.80	0.96	0.96	0.97	0.95	0.98	0.93	0.96	0.95

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 7: Examining Heterogeneities in Revenues and Expenditures Per Pupil by School District Size (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil			Total Revenue Per Pupil			Tot Debt Outstanding Per Pupil		
	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	-1.270*	1.235	-1.604	-0.642**	-0.902	0.087	-2.829	8.640***	10.089*
% Shift in 2009-10	-0.047	4.143	1.130	-2.280***	-1.526	-2.253	-3.619	14.181***	29.441***
Pre-Recession Base	20102.84	20783.91	32724.01	19632.78	20074.29	31181.69	9578.41	12944.38	15974.73
Trend	492.3***	642.0***	1639.4***	626.0***	810.4***	1461.7***	261.5***	64.6	-142.5
	(59.9)	(90.5)	(300.5)	(23.0)	(70.1)	(255.9)	(92.7)	(105.3)	(299.3)
Recession	-255.2*	256.6	-525.0	-126.0**	-181.1	27.0	-271.0	1118.4***	1611.7*
	(150.9)	(249.5)	(1107.6)	(62.6)	(181.0)	(1011.2)	(231.7)	(324.5)	(870.3)
Stimulus	245.7	604.5**	894.9	-321.7***	-125.2	-729.4	-75.6	717.2*	3091.4***
	(159.3)	(238.0)	(1363.2)	(72.0)	(101.4)	(1227.9)	(264.8)	(383.6)	(1175.1)
Observations	1026	2082	1038	1026	2082	1038	1026	2069	973
R-squared	0.90	0.74	0.87	0.98	0.88	0.89	0.83	0.73	0.78

Panel B	Federal Revenue Per Pupil			State Revenue Per Pupil			Property Taxes Per Pupil			Local Revenue Per Pupil		
	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
% Shift in 2008-09	1.364	-2.428	16.035	3.069***	3.910***	3.224*	-1.936***	-1.096*	-3.630	-4.267***	-6.318***	-3.561
% Shift in 2009-10	146.752***	140.584***	103.882***	-11.189***	-4.779***	-6.599***	-1.960	0.469	-4.632***	-4.506***	-6.935***	-6.372
Pre-Recession Base	524.80	577.22	1144.38	5894.54	7866.64	8562.20	9803.54	8031.05	14362.90	12439.12	10666.21	20701.68
Trend	-16.0***	-20.2***	2.9	292.1***	394.1***	536.4***	295.6***	246.2***	613.1***	358.3***	439.2***	925.1***
	(5.8)	(5.0)	(39.2)	(17.9)	(15.5)	(37.9)	(17.1)	(15.6)	(181.1)	(20.0)	(70.1)	(222.5)
Recession	7.2	-14.0	183.5	180.9***	307.6***	276.0*	-189.8***	-88.0*	-521.3	-530.8***	-673.9***	-737.1
	(14.9)	(14.8)	(173.6)	(52.7)	(51.7)	(166.1)	(39.6)	(45.7)	(493.6)	(47.9)	(178.9)	(769.0)
Stimulus	763.0***	825.5***	1005.3***	-840.4***	-683.6***	-841.0***	-2.3	125.7**	-144.0	-29.7	-65.8	-582.0
	(19.4)	(16.0)	(253.0)	(58.2)	(68.7)	(179.9)	(49.9)	(55.0)	(704.2)	(60.0)	(84.2)	(944.9)
Observations	1026	2082	1038	1026	2082	1038	1026	2082	1038	1026	2082	1038
R-squared	0.94	0.90	0.85	0.98	0.97	0.94	0.99	0.99	0.95	0.99	0.95	0.93

Panel C	% Federal Revenue			% State Revenue			% Local Revenue			Total Students		
	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE
	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
% Shift in 2008-09	2.535	-1.105	-8.010**	2.613***	2.879***	2.223***	-3.179***	-4.191***	-2.571***	0.760	-0.468**	-0.253
% Shift in 2009-10	148.704***	138.276***	90.783***	-8.487***	-4.665***	-4.875***	-2.054***	-3.988***	-2.758***	3.276	-0.487	-0.124
Pre-Recession Base	2.73	2.97	3.70	33.17	43.51	39.14	63.14	52.38	56.06	11853.50	1638.56	402.54
Trend	-0.2***	-0.2***	-0.2***	0.5***	0.3***	0.4***	-0.3***	0.0	-0.1*	-151.1**	-21.2***	-9.4***
	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(58.8)	(1.3)	(0.7)
Recession	0.1	-0.0	-0.3**	0.9***	1.3***	0.9***	-2.0***	-2.2***	-1.4***	90.1	-7.7**	-1.0
	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(171.3)	(3.6)	(2.4)
Stimulus	4.0***	4.1***	3.7***	-3.7***	-3.3***	-2.8***	0.7***	0.1	-0.1	298.2	-0.3	0.5
	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(195.4)	(4.5)	(2.8)
Observations	1026	2082	1038	1026	2082	1038	1026	2082	1038	1026	2082	1038
R-squared	0.93	0.89	0.88	0.99	0.99	0.99	0.99	0.99	1.00	1.00	0.99	0.99

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 8: Examining Heterogeneities in the Composition of Expenditures by School District Size (Using Intercept Shifts)

Panel A	Instructional Expenditures Per Pupil			Instructional Support Per Pupil			Student Services Per Pupil		
	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	0.310	0.945**	-1.805	0.611	0.345	-1.367	0.580	1.165	-3.548
% Shift in 2009-10	2.535***	2.974	-1.441	0.579	0.260	-3.433	0.174	2.560	-4.171
Pre-Recession Base	9834.15	9403.36	15651.16	728.55	865.04	1089.32	605.18	548.03	908.58
Trend	155.2***	189.8***	593.8***	17.3***	30.0***	46.0***	13.5***	12.8***	33.3**
	(18.0)	(13.7)	(136.2)	(2.7)	(2.5)	(11.0)	(1.7)	(1.3)	(13.7)
Recession	30.4	88.8**	-282.4	4.5	3.0	-14.9	3.5	6.4	-32.2
	(43.5)	(43.5)	(466.9)	(7.5)	(8.1)	(31.1)	(4.3)	(3.9)	(47.3)
Stimulus	218.9***	190.8***	56.9	-0.2	-0.7	-22.5	-2.5	7.6*	-5.7
	(48.2)	(63.3)	(630.3)	(8.9)	(9.1)	(50.9)	(5.0)	(4.5)	(54.9)
Observations	1026	2082	1038	1026	2082	1038	1026	2082	1038
R-squared	0.97	0.92	0.91	0.88	0.85	0.88	0.97	0.96	0.91

Panel B	Transportation Per Pupil			Student Activities Per Pupil			Utilities & Maintenance Spending Per Pupil		
	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE	Large FE	Medium FE	Small FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
% Shift in 2008-09	-2.575***	-5.185***	-2.860	-0.027	0.338	-0.230	-2.531***	-2.204***	-4.680
% Shift in 2009-10	-4.371***	-7.507***	-11.692	-1.029	-1.451	-2.779	-3.013***	-2.895***	-6.522
Pre-Recession Base	1031.10	1035.35	1694.97	206.10	277.64	295.83	4136.04	4485.04	9694.13
Trend	31.8***	42.5***	112.4***	5.8***	10.0***	12.6***	122.4***	154.2***	426.3***
	(3.5)	(2.7)	(36.6)	(0.8)	(0.6)	(1.8)	(10.2)	(9.6)	(116.7)
Recession	-26.5***	-53.7***	-48.5	-0.1	0.9	-0.7	-104.7***	-98.8***	-453.7
	(9.2)	(8.9)	(168.8)	(1.9)	(1.8)	(5.8)	(24.5)	(32.0)	(350.1)
Stimulus	-18.5*	-24.0***	-149.7	-2.1	-5.0**	-7.5	-19.9	-31.0	-178.6
	(10.4)	(9.2)	(179.6)	(2.7)	(2.1)	(6.0)	(28.3)	(33.5)	(455.5)
Observations	1026	2082	1038	1026	2082	1038	1026	2082	1038
R-squared	0.95	0.93	0.82	0.96	0.97	0.94	0.97	0.92	0.95

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 9: Examining Heterogeneities in Revenues and Expenditures Per Pupil by Urban Status (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil			Total Revenue Per Pupil			Tot Debt Outstanding Per Pupil		
	Urban FE (1)	Suburban FE (2)	Rural FE (3)	Urban FE (4)	Suburban FE (5)	Rural FE (6)	Urban FE (7)	Suburban FE (8)	Rural FE (9)
% Shift in 2008-09	1.069	-1.338	-0.535	-1.365	-0.949	-0.535	6.919**	0.506	10.406***
% Shift in 2009-10	1.062	0.158	4.157	-4.580***	-2.288	-0.877	10.548**	4.647	24.405***
Pre-Recession Base	19969.62	24599.04	24243.07	19336.01	23888.48	23149.14	12773.78	11843.60	13648.07
Trend	540.7***	966.9***	1130.0***	737.0***	1123.3***	1070.9***	156.0	104.6	-44.8
	(161.8)	(213.6)	(158.6)	(132.4)	(197.6)	(137.1)	(128.6)	(195.5)	(175.3)
Recession	213.4	-329.2	-129.8	-263.9	-226.8	-123.9	883.8**	60.0	1420.2***
	(333.7)	(550.5)	(477.4)	(227.8)	(524.8)	(403.7)	(414.2)	(497.3)	(459.6)
Stimulus	-1.4	368.1	1137.5*	-621.6***	-319.9	-79.1	463.6	490.4	1910.6***
	(376.5)	(639.4)	(596.5)	(219.1)	(594.1)	(474.8)	(465.5)	(607.1)	(610.6)
Observations	797	1511	1831	797	1511	1831	791	1495	1775
R-squared	0.88	0.87	0.89	0.94	0.88	0.92	0.84	0.79	0.76

Panel B	Federal Revenue Per Pupil			State Revenue Per Pupil			Property Taxes Per Pupil			Local Revenue Per Pupil		
	Urban FE (10)	Suburban FE (11)	Rural FE (12)	Urban FE (13)	Suburban FE (14)	Rural FE (15)	Urban FE (16)	Suburban FE (17)	Rural FE (18)	Urban FE (19)	Suburban FE (20)	Rural FE (21)
% Shift in 2008-09	-1.564	18.840	-1.905	3.031***	4.253**	3.353***	-4.307**	-0.933	-3.972	-8.099***	-4.744**	-5.048*
% Shift in 2009-10	114.391***	131.378***	127.520***	-6.032***	-11.738***	-4.328***	-7.265**	-0.025	-2.404	-12.779***	-4.734*	-6.047
Pre-Recession Base	710.53	667.17	735.31	8469.08	4996.25	9274.05	6722.12	12326.04	9501.37	9166.96	17285.59	12356.04
Trend	-31.8***	45.7	-9.8	425.4***	303.2***	474.7***	172.3*	403.1***	438.1***	347.6***	758.8***	612.1***
	(6.4)	(40.7)	(14.4)	(22.7)	(38.8)	(18.2)	(96.1)	(46.8)	(113.6)	(127.2)	(145.0)	(128.8)
Recession	-11.1	125.7	-14.0	256.7***	212.5**	310.9***	-289.5**	-115.0	-377.4	-742.4***	-820.0**	-623.8*
	(17.3)	(99.1)	(49.6)	(79.5)	(106.4)	(60.1)	(129.8)	(97.4)	(266.0)	(213.7)	(356.2)	(364.2)
Stimulus	823.9***	750.8***	951.7***	-767.6***	-799.0***	-712.3***	-198.8	111.8	149.0	-429.0**	1.6	-123.4
	(22.8)	(157.1)	(56.6)	(84.4)	(117.8)	(84.1)	(156.6)	(151.8)	(363.6)	(198.0)	(332.6)	(427.4)
Observations	797	1511	1831	797	1511	1831	797	1511	1831	797	1511	1831
R-squared	0.92	0.87	0.72	0.97	0.92	0.96	0.98	0.98	0.96	0.97	0.93	0.94

Panel C	% Federal Revenue			% State Revenue			% Local Revenue			Total Students		
	Urban FE (22)	Suburban FE (23)	Rural FE (24)	Urban FE (25)	Suburban FE (26)	Rural FE (27)	Urban FE (28)	Suburban FE (29)	Rural FE (30)	Urban FE (31)	Suburban FE (32)	Rural FE (33)
% Shift in 2008-09	-0.629	3.009	-5.780**	1.978***	4.037***	2.376***	-4.604***	-2.750***	-4.030***	0.293	-0.314	-0.653**
% Shift in 2009-10	113.726***	147.558***	121.332***	-4.819***	-7.996***	-4.627***	-4.282***	-2.019***	-4.190***	3.321	-0.297	-0.863**
Pre-Recession Base	3.83	2.33	3.41	48.40	25.50	48.11	46.29	71.52	47.20	10525.38	3825.78	1102.29
Trend	-0.4***	-0.1***	-0.2***	0.5***	0.3***	0.4***	-0.1	-0.1	-0.0	-109.5***	-24.3***	-17.9***
	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(39.5)	(3.5)	(1.0)
Recession	-0.0	0.1	-0.2**	1.0***	1.0***	1.1***	-2.1***	-2.0***	-1.9***	30.8	-12.0	-7.2**
	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(172.5)	(9.6)	(3.1)
Stimulus	4.4***	3.4***	4.3***	-3.3***	-3.1***	-3.4***	0.1	0.5***	-0.1	318.8	0.7	-2.3
	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(227.2)	(11.1)	(4.0)
Observations	797	1511	1831	797	1511	1831	797	1511	1831	797	1511	1831
R-squared	0.90	0.93	0.84	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 10: Examining Heterogeneities in the Composition of Expenditures by Urban Status (Using Intercept Shifts)

Panel A	Instructional Expenditures Per Pupil			Instructional Support Per Pupil			Student Services Per Pupil		
	Urban FE	Suburban FE	Rural FE	Urban FE	Suburban FE	Rural FE	Urban FE	Suburban FE	Rural FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	-1.377	0.747	-1.115	0.668	0.426	-1.002	1.501	-2.187	-1.022
% Shift in 2009-10	-3.305	3.701	0.855	0.757	-0.871	-1.497	-0.033	-2.619	1.661
Pre-Recession Base	9617.69	12031.65	10855.30	795.10	808.81	991.42	468.94	826.95	584.16
Trend	189.8*	378.1***	376.9***	22.3***	24.0***	37.1***	10.5***	22.7**	19.7***
	(105.8)	(101.2)	(63.3)	(4.6)	(4.2)	(5.7)	(2.3)	(9.8)	(5.6)
Recession	-132.4	89.9	-121.0	5.3	3.4	-9.9	7.0	-18.1	-6.0
	(174.3)	(224.9)	(165.1)	(13.0)	(11.2)	(16.9)	(6.3)	(23.3)	(17.7)
Stimulus	-185.4	355.4	213.8	0.7	-10.5	-4.9	-7.2	-3.6	15.7
	(173.9)	(325.6)	(215.0)	(13.6)	(13.5)	(28.9)	(7.1)	(20.7)	(24.1)
Observations	797	1511	1831	797	1511	1831	797	1511	1831
R-squared	0.94	0.91	0.94	0.84	0.86	0.89	0.92	0.95	0.87

Panel B	Transportation Per Pupil			Student Activities Per Pupil			Utilities & Maintenance Spending Per Pupil		
	Urban FE	Suburban FE	Rural FE	Urban FE	Suburban FE	Rural FE	Urban FE	Suburban FE	Rural FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
% Shift in 2008-09	-6.541***	6.899	-10.224***	-1.445	0.385	0.260	-4.217**	-2.364	-4.823*
% Shift in 2009-10	-10.534***	-3.596	-9.773**	-3.667**	-0.634	-2.210	-7.489**	-1.416	-5.754
Pre-Recession Base	891.03	1100.15	1416.62	231.47	261.93	279.55	4727.63	5598.72	6180.89
Trend	34.6***	71.2**	90.8***	9.3***	6.7***	12.3***	98.4	183.0***	325.0***
	(5.4)	(29.6)	(22.3)	(0.9)	(1.0)	(1.0)	(69.3)	(52.2)	(70.0)
Recession	-58.3***	75.9	-144.8***	-3.3	1.0	0.7	-199.4**	-132.3	-298.1*
	(15.4)	(99.3)	(44.1)	(2.8)	(2.4)	(3.2)	(87.9)	(104.5)	(175.2)
Stimulus	-35.6**	-115.5	6.4	-5.1*	-2.7	-6.9**	-154.7	53.0	-57.5
	(15.9)	(109.6)	(52.9)	(2.9)	(2.9)	(3.5)	(110.5)	(143.6)	(207.6)
Observations	797	1511	1831	797	1511	1831	797	1511	1831
R-squared	0.91	0.63	0.90	0.97	0.97	0.94	0.96	0.97	0.95

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 11: Examining Heterogeneities in Revenues and Expenditures Per Pupil for the Big Five School Districts (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil						Total Revenue Per Pupil					
	Buffalo FE (1)	NYC FE (2)	Rochester FE (3)	Syracuse FE (4)	Yonkers FE (5)	Big Five FE (6)	Buffalo FE (7)	NYC FE (8)	Rochester FE (9)	Syracuse FE (10)	Yonkers FE (11)	Big Five FE (12)
% Shift in 2008-09	8.400***	-4.554	2.560*	0.998	-0.012	1.603	3.359	-2.297	10.331***	7.530	0.208	3.621*
% Shift in 2009-10	2.392	-6.847	-0.137	2.361	-5.180**	-1.529	-4.713	-6.884	5.709*	3.824	-6.433**	-1.994
Pre-Recession Base	23197.22	20832.29	20476.32	19426.12	23075.16	21401.42	22129.28	20832.29	19540.11	19354.71	22772.67	20925.81
Trend	530.7**	1112.9*	565.7***	422.3	739.2**	674.2***	916.3	1113.7*	364.9*	307.7	697.2**	680.0***
	(59.9)	(260.6)	(51.0)	(209.3)	(75.7)	(98.2)	(593.5)	(261.0)	(117.8)	(449.8)	(94.8)	(152.6)
Recession	1948.6***	-948.7	524.1*	193.8	-2.8	343.0	743.3	-478.4	2018.7***	1457.4	47.5	757.7*
	(188.6)	(937.2)	(161.8)	(371.3)	(144.7)	(355.0)	(1679.1)	(938.2)	(201.4)	(997.7)	(238.6)	(416.6)
Stimulus	-1393.8***	-477.6	-552.2***	264.9	-1192.6***	-670.2*	-1786.3*	-955.7*	-903.2**	-717.2	-1512.4***	-1174.9***
	(59.9)	(260.6)	(51.0)	(209.3)	(75.7)	(331.8)	(593.5)	(261.0)	(117.8)	(449.8)	(94.8)	(308.9)
Observations	6	6	6	6	6	30	6	6	6	6	6	30
R-squared	1.00	0.95	1.00	0.91	0.99	0.96	0.85	0.95	0.98	0.80	0.97	0.90

Panel B	Total Debt Outstanding Per Pupil						Federal Revenue Per Pupil					
	Buffalo FE (13)	NYC FE (14)	Rochester FE (15)	Syracuse FE (16)	Yonkers FE (17)	Big Five FE (18)	Buffalo FE (19)	NYC FE (20)	Rochester FE (21)	Syracuse FE (22)	Yonkers FE (23)	Big Five FE (24)
% Shift in 2008-09	-0.132	-11.289	0.664	-3.158	3.844	-2.302	6.069**	-5.223	13.386**	-8.883	6.890	2.167
% Shift in 2009-10	18.265	-7.967	-4.217	4.011	3.841	6.792	48.798***	32.155	82.087***	72.604**	67.461***	61.298***
Pre-Recession Base	25555.55	12122.64	6569.31	8037.58	6653.54	11787.73	1564.82	1476.59	1568.83	1814.20	1535.40	1591.97
Trend	1790.0	469.8	77.8	368.0	-15.0	538.1	-104.8**	-15.7	-70.9**	-141.6	-57.9	-78.2***
	(1793.4)	(445.1)	(45.0)	(580.9)	(74.4)	(322.5)	(10.6)	(64.9)	(12.5)	(58.8)	(22.3)	(23.8)
Recession	-33.8	-1368.5	43.6	-253.8	255.8	-271.3	95.0**	-77.1	210.0**	-161.2	105.8	34.5
	(5819.7)	(1121.4)	(77.5)	(1990.1)	(204.0)	(1028.4)	(21.2)	(163.3)	(33.4)	(186.0)	(72.6)	(100.9)
Stimulus	4701.6	402.6	-320.6**	576.2	-0.2	1071.9	668.6***	551.9**	1077.8***	1478.3***	930.0***	941.3***
	(1793.4)	(445.1)	(45.0)	(580.9)	(74.4)	(1739.0)	(10.6)	(64.9)	(12.5)	(58.8)	(22.3)	(139.0)
Observations	6	6	6	6	6	30	6	6	6	6	6	30
R-squared	0.83	0.54	0.76	0.50	0.62	0.92	1.00	0.86	1.00	0.94	0.99	0.86

Panel C	State Revenue Per Pupil						Local Revenue Per Pupil					
	Buffalo FE (25)	NYC FE (26)	Rochester FE (27)	Syracuse FE (28)	Yonkers FE (29)	Big Five FE (30)	Buffalo FE (31)	NYC FE (32)	Rochester FE (33)	Syracuse FE (34)	Yonkers FE (35)	Big Five FE (36)
% Shift in 2008-09	4.043	-4.555	8.011	4.587	3.960	3.855	-16.623	-4.664**	-1.444	7.008	-10.132	-6.135
% Shift in 2009-10	-10.504*	-21.624	-1.816	-6.515	-8.073	-8.806**	-5.474	-1.558	0.852	1.454	-16.244	-5.797
Pre-Recession Base	15296.81	8158.61	13235.66	13109.39	10968.12	12153.72	4536.49	10803.56	4163.31	3934.18	9902.35	6667.98
Trend	1031.6**	647.6*	482.2	503.8	298.4	592.7***	57.3	503.0***	-10.9	-26.2	475.3	199.7
	(131.4)	(191.5)	(209.1)	(470.9)	(302.0)	(132.8)	(450.5)	(35.1)	(61.6)	(52.8)	(271.4)	(121.3)
Recession	618.4	-371.6	1060.3	601.3	434.3	468.5	-754.1	-503.8**	-60.1	275.7	-1003.3	-409.1
	(304.3)	(724.0)	(394.9)	(1166.5)	(629.4)	(381.7)	(1274.4)	(78.2)	(165.4)	(129.8)	(755.9)	(307.2)
Stimulus	-2225.2***	-1392.6**	-1300.7**	-1455.4*	-1319.8**	-1538.7***	505.7	335.5**	95.6	-218.5*	-605.3	22.6
	(131.4)	(191.5)	(209.1)	(470.9)	(302.0)	(372.5)	(450.5)	(35.1)	(61.6)	(52.8)	(271.4)	(318.4)
Observations	6	6	6	6	6	30	6	6	6	6	6	30
R-squared	0.99	0.87	0.94	0.74	0.69	0.96	0.19	1.00	0.21	0.70	0.70	0.98

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table 12: Examining Heterogeneities in Revenues and Expenditures Per Pupil for the Big Five School Districts (Using Intercept Shifts)

Panel A	Instructional Expenditures Per Pupil						Instructional Support Per Pupil					
	Buffalo FE (1)	NYC FE (2)	Rochester FE (3)	Syracuse FE (4)	Yonkers FE (5)	Big Five FE (6)	Buffalo FE (7)	NYC FE (8)	Rochester FE (9)	Syracuse FE (10)	Yonkers FE (11)	Big Five FE (12)
% Shift in 2008-09	-0.612	-2.662*	6.514*	2.892	-2.298**	0.565	6.790	-7.551***	12.083*	-1.189	-0.983	2.348
% Shift in 2009-10	2.283	-6.454**	6.640	5.586	-5.289***	0.147	7.767	-12.195***	25.929**	-3.469	9.810	6.064
Pre-Recession Base	10183.88	11698.24	10255.78	10063.46	12116.67	10863.60	690.29	597.96	668.75	566.35	496.11	603.89
Trend	57.5	532.3***	95.0	193.1	421.9***	260.0***	-2.0	28.1***	-17.2	17.0**	-27.0	-0.2
	(170.4)	(23.6)	(109.3)	(134.5)	(11.3)	(77.3)	(7.2)	(2.4)	(5.9)	(3.3)	(25.9)	(7.6)
Recession	-62.4	-311.4*	668.1*	291.0	-278.5**	61.4	46.9	-45.2***	80.8*	-6.7	-4.9	14.2
	(524.0)	(86.1)	(219.9)	(281.2)	(30.3)	(202.2)	(19.4)	(4.0)	(22.0)	(5.8)	(79.4)	(26.6)
Stimulus	294.8	-443.5***	12.9	271.1	-362.3***	-45.4	6.7	-27.8***	92.6***	-12.9*	53.5	22.4
	(170.4)	(23.6)	(109.3)	(134.5)	(11.3)	(174.5)	(7.2)	(2.4)	(5.9)	(3.3)	(25.9)	(25.7)
Observations	6	6	6	6	6	30	6	6	6	6	6	30
R-squared	0.45	1.00	0.93	0.92	1.00	0.92	0.74	0.99	0.95	0.96	0.65	0.84

Panel B	Student Services Per Pupil						Transportation Per Pupil					
	Buffalo FE (13)	NYC FE (14)	Rochester FE (15)	Syracuse FE (16)	Yonkers FE (17)	Big Five FE (18)	Buffalo FE (19)	NYC FE (20)	Rochester FE (21)	Syracuse FE (22)	Yonkers FE (23)	Big Five FE (24)
% Shift in 2008-09	-2.374	27.691	-7.277	-0.359	-4.308	-2.554	0.447	-11.399	-0.501	3.490	-7.275***	-3.328
% Shift in 2009-10	-5.733	35.379	-13.547	-22.539***	-3.979	-8.619	-1.462	-18.718	-13.462*	5.651	-10.884***	-8.973*
Pre-Recession Base	446.65	110.15	667.63	435.00	691.84	470.25	1197.25	1013.65	1535.67	716.11	1408.83	1174.30
Trend	32.4**	-5.0	41.5	41.8***	42.7*	30.7***	39.9***	78.2*	81.2**	54.3	129.8***	76.7***
	(5.6)	(20.2)	(21.2)	(3.5)	(11.4)	(8.4)	(3.4)	(26.1)	(13.6)	(45.9)	(4.3)	(12.7)
Recession	-10.6	30.5	-48.6	-1.6	-29.8	-12.0	5.4	-115.6	-7.7	25.0	-102.5***	-39.1
	(15.3)	(53.5)	(55.4)	(6.2)	(27.3)	(18.8)	(10.1)	(72.2)	(47.8)	(107.9)	(9.7)	(32.4)
Stimulus	-15.0	8.5	-41.9	-96.5***	2.3	-28.5	-22.9**	-74.2	-199.0***	15.5	-50.8***	-66.3
	(5.6)	(20.2)	(21.2)	(3.5)	(11.4)	(19.8)	(3.4)	(26.1)	(13.6)	(45.9)	(4.3)	(42.7)
Observations	6	6	6	6	6	30	6	6	6	6	6	30
R-squared	0.96	0.19	0.81	0.99	0.96	0.98	0.99	0.90	0.95	0.82	1.00	0.97

Panel C	Student Activities Per Pupil						Utilities & Maintenance Per Pupil					
	Buffalo FE (25)	NYC FE (26)	Rochester FE (27)	Syracuse FE (28)	Yonkers FE (29)	Big Five FE (30)	Buffalo FE (31)	NYC FE (32)	Rochester FE (33)	Syracuse FE (34)	Yonkers FE (35)	Big Five FE (36)
% Shift in 2008-09	7.432	5.438	-7.260	12.375**	-7.209*	0.515	-4.836	-1.470	2.862	3.706	-6.065	-1.525
% Shift in 2009-10	7.256	-4.071	-11.944	9.806*	-22.373**	-7.221	-7.791	-0.131	6.505	4.958	-6.084	-1.029
Pre-Recession Base	50.61	18.97	61.57	91.44	135.87	71.69	6096.96	4926.54	5310.66	3390.10	4650.93	4875.04
Trend	3.5**	0.9*	3.4	2.6	14.3***	4.9***	341.2*	250.2**	65.9	126.8	83.1	173.4**
	(0.7)	(0.2)	(3.0)	(0.9)	(0.8)	(1.7)	(106.2)	(39.7)	(304.6)	(197.6)	(59.2)	(65.0)
Recession	3.8	1.0	-4.5	11.3**	-9.8*	0.4	-294.8	-72.4	152.0	125.6	-282.1	-74.3
	(1.7)	(0.9)	(7.6)	(1.8)	(2.8)	(4.9)	(296.2)	(103.9)	(782.6)	(427.0)	(126.3)	(148.8)
Stimulus	-0.1	-1.8**	-2.9	-2.3	-20.6***	-5.5	-180.2	65.9	193.5	42.4	-0.9	24.2
	(0.7)	(0.2)	(3.0)	(0.9)	(0.8)	(4.3)	(106.2)	(39.7)	(304.6)	(197.6)	(59.2)	(147.5)
Observations	6	6	6	6	6	30	6	6	6	6	6	30
R-squared	0.98	0.96	0.58	0.97	1.00	0.97	0.94	0.99	0.34	0.61	0.59	0.94

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table A1: Examining Heterogeneities in Revenues and Expenditures Per Pupil by Metropolitan Area (Using Intercept Shifts)

Panel A	Total Expenditure Per Pupil			Total Revenue Per Pupil			Tot Debt Outstanding Per Pupil		
	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	6.136**	-8.489**	4.208**	1.745*	-4.913*	1.238*	10.442	-8.276	5.911
% Shift in 2009-10	10.285***	-12.114*	5.387*	1.111	-9.550*	1.594*	23.010**	-13.999	8.306
Pre-Recession Base	18831.97	31154.16	18447.29	18193.76	29898.80	18155.13	12018.47	10382.89	12903.40
Trend	749.0***	1794.3***	379.9***	816.4***	1731.2***	561.8***	4.6	976.6	-139.8
	(141.8)	(520.1)	(105.7)	(53.1)	(498.6)	(38.9)	(242.8)	(661.6)	(175.1)
Recession	1155.6**	-2644.7**	776.3**	317.5*	-1468.9*	224.8*	1255.0	-859.3	762.7
	(511.3)	(1156.7)	(331.3)	(180.9)	(829.6)	(126.3)	(856.7)	(549.1)	(519.1)
Stimulus	781.2	-1129.4	217.5	-115.4	-1386.6	64.6	1510.4	-594.2	309.0
	(654.4)	(1468.2)	(420.2)	(219.8)	(1248.2)	(151.8)	(1088.2)	(881.4)	(626.7)
Observations	252	703	348	252	703	348	252	673	348
R-squared	0.68	0.90	0.67	0.92	0.93	0.93	0.71	0.83	0.85

Panel B	Federal Revenue Per Pupil			State Revenue Per Pupil			Property Taxes Per Pupil			Local Revenue Per Pupil		
	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	FE	FE	FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
% Shift in 2008-09	3.116	-4.556	0.165	4.401***	2.423	4.491***	-1.244	-5.037	-1.110	-4.478***	-7.224**	-4.498***
% Shift in 2009-10	166.174***	139.469***	155.060***	-3.186*	-14.011***	-4.034***	-0.794	-8.517	-0.700	-6.275***	-11.403*	-3.679***
Pre-Recession Base	597.02	432.54	612.08	9852.61	4868.83	8870.37	5060.83	21164.86	5845.29	7449.44	24485.27	8451.95
Trend	-33.4***	-9.8	-8.2	502.0***	334.4***	387.5***	232.5***	1216.1***	139.4***	349.7***	1405.5***	189.4***
	(10.1)	(7.8)	(8.9)	(40.6)	(27.0)	(30.1)	(20.5)	(445.7)	(18.4)	(27.2)	(494.4)	(21.2)
Recession	18.6	-19.7	1.0	433.7***	118.0	398.4***	-63.0	-1066.0	-64.9	-333.6***	-1768.9**	-380.2***
	(28.1)	(23.8)	(24.2)	(129.6)	(85.9)	(97.9)	(61.4)	(737.1)	(49.9)	(92.4)	(809.1)	(65.1)
Stimulus	973.5***	623.0***	948.1***	-747.6***	-800.1***	-756.2***	22.8	-736.5	24.0	-133.8	-1023.1	69.2
	(39.2)	(37.3)	(28.2)	(174.0)	(103.7)	(106.3)	(77.5)	(1135.2)	(58.6)	(101.8)	(1192.4)	(81.2)
Observations	252	703	348	252	703	348	252	703	348	252	703	348
R-squared	0.89	0.79	0.94	0.95	0.96	0.98	0.98	0.94	0.99	0.98	0.93	0.98

Panel C	% Federal Revenue			% State Revenue			% Local Revenue			Total Students		
	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	FE	FE	FE
	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
% Shift in 2008-09	3.905	-1.115	1.383	2.351***	3.232***	2.875***	-5.888***	-1.784***	-5.333***	-0.354	0.033	-0.444
% Shift in 2009-10	157.651***	149.077***	152.954***	-4.307***	-11.036***	-5.638***	-6.82***	-0.403	-4.980***	-0.311	0.504	-0.703
Pre-Recession Base	3.29	1.66	3.29	54.23	20.21	48.51	40.86	77.68	47.00	1966.71	3715.24	2972.38
Trend	-0.4***	-0.1***	-0.2***	0.2*	0.5***	0.6***	0.3**	-0.3***	-0.3***	-27.2***	-31.8***	-30.4***
	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(2.7)	(5.2)	(9.2)
Recession	0.1	-0.0	0.0	1.3***	0.7***	1.4***	-2.4***	-1.4***	-2.5***	-7.0	1.2	-13.2
	(0.2)	(0.1)	(0.1)	(0.4)	(0.2)	(0.3)	(0.3)	(0.2)	(0.3)	(9.2)	(14.4)	(22.9)
Stimulus	5.1***	2.5***	5.0***	-3.6***	-2.9***	-4.1***	-0.4	1.1***	0.2	0.8	17.5	-7.7
	(0.2)	(0.1)	(0.2)	(0.4)	(0.3)	(0.3)	(0.4)	(0.2)	(0.3)	(12.0)	(15.7)	(27.0)
Observations	252	703	348	252	703	348	252	703	348	252	703	348
R-squared	0.87	0.82	0.92	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Table A2: Examining Heterogeneities in the Composition of Expenditures by Metropolitan Area (Using Intercept Shifts)

Panel A	Instructional Expenditures			Instructional Support			Student Services		
	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Shift in 2008-09	1.243	-4.460	1.436	3.430	-3.576	3.808	1.577	0.108	-1.058
% Shift in 2009-10	3.109*	-8.322*	3.277**	1.518	-3.388	8.985**	3.666	0.772	-2.771
Pre-Recession Base	8395.64	15971.95	8438.53	915.59	958.42	868.50	417.94	848.25	479.09
Trend	287.2***	672.0***	145.0***	39.2***	46.1***	25.5***	14.2***	26.9**	15.1***
	(35.0)	(259.0)	(26.2)	(7.1)	(13.6)	(8.0)	(2.6)	(10.7)	(3.2)
Recession	104.4	-712.4	121.1	31.4	-34.3	33.1	6.6	0.9	-5.1
	(115.8)	(462.1)	(92.6)	(24.2)	(35.1)	(24.5)	(7.9)	(23.4)	(10.2)
Stimulus	156.7	-616.7	155.4	-17.5	1.8	45.0*	8.7	5.6	-8.2
	(145.8)	(631.9)	(99.4)	(27.2)	(72.0)	(25.9)	(10.7)	(31.4)	(9.9)
Observations	252	703	348	252	703	348	252	703	348
R-squared	0.84	0.94	0.87	0.89	0.88	0.81	0.87	0.90	0.88

Panel B	Transportation Per Pupil			Student Activities Per Pupil			Utilities & Maintenance Spending Per Pupil		
	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE	Ithaca FE	Nassau FE	Rochester FE
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
% Shift in 2008-09	-5.232**	-18.612***	-3.011	2.726	1.919	-0.200	-1.965	-9.614*	-0.688
% Shift in 2009-10	-9.149***	-29.410**	-4.272	0.235	1.232	-0.123	-3.829*	-18.770*	1.224
Pre-Recession Base	875.37	1780.46	960.25	255.43	323.51	256.68	4294.35	8790.90	4193.63
Trend	48.9***	215.2**	30.3***	12.0***	11.1***	13.0***	214.0***	605.8**	132.9***
	(7.1)	(89.8)	(6.2)	(1.6)	(1.9)	(1.4)	(23.0)	(294.2)	(16.2)
Recession	-45.8**	-331.4***	-28.9	7.0	6.2	-0.5	-84.4	-845.2*	-28.9
	(22.3)	(125.5)	(23.6)	(5.0)	(6.2)	(3.8)	(79.6)	(504.4)	(50.2)
Stimulus	-34.3	-192.3	-12.1	-6.4	-2.2	0.2	-80.1	-804.8	80.2
	(23.6)	(178.1)	(23.0)	(5.4)	(7.3)	(4.7)	(87.7)	(684.3)	(63.3)
Observations	252	703	348	252	703	348	252	703	348
R-squared	0.88	0.89	0.78	0.93	0.96	0.93	0.85	0.94	0.94

Notes:*, **, *** denote significance at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by school district are in parentheses. All regressions control for racial composition, and percent of students eligible for free or reduced price lunch.

Figure 1. Examining the Trends in School Revenues and Expenditures for New York State during the Great Recession

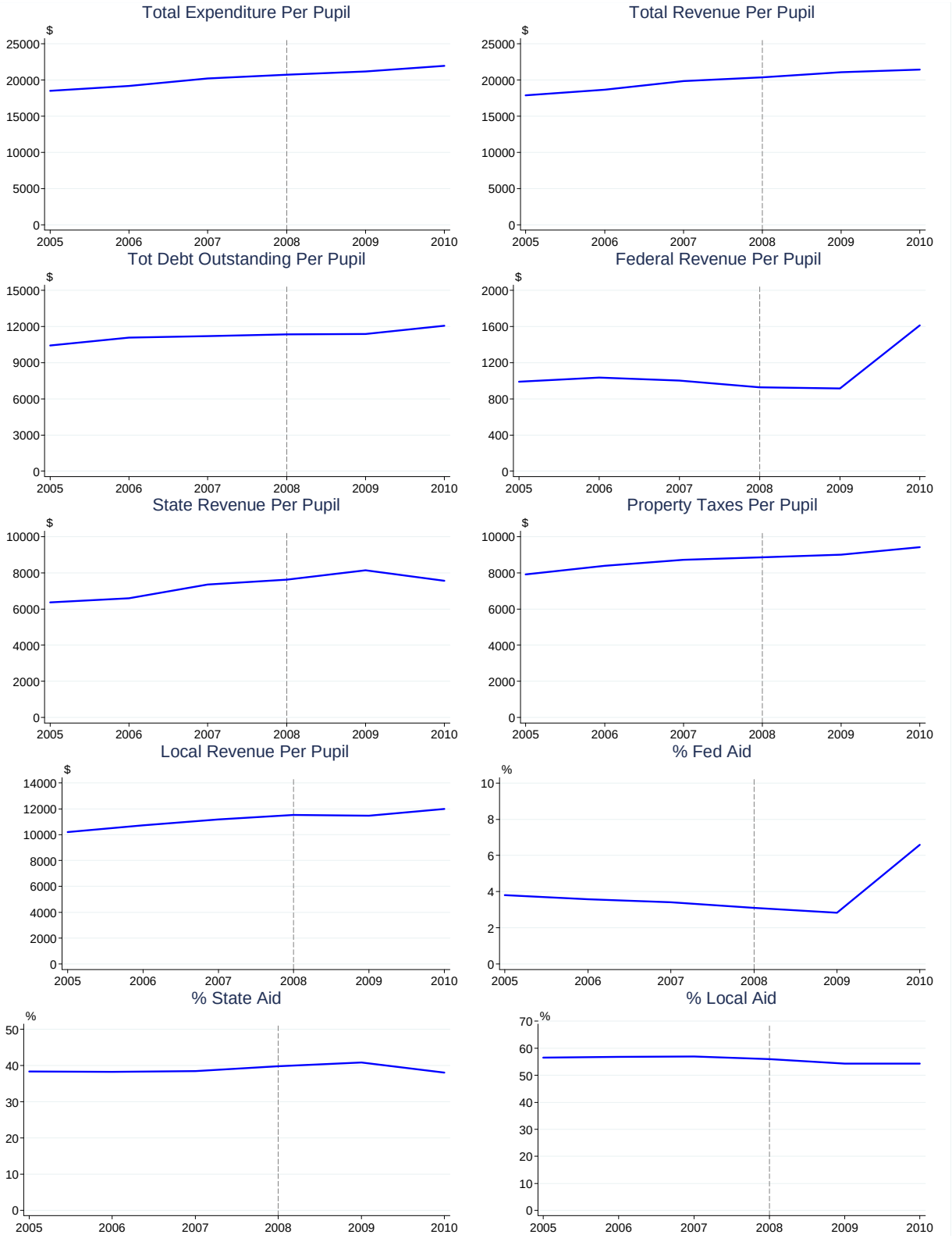


Figure 2. Examining the Trends in the Composition of School Expenditures for New York State during the Great Recession

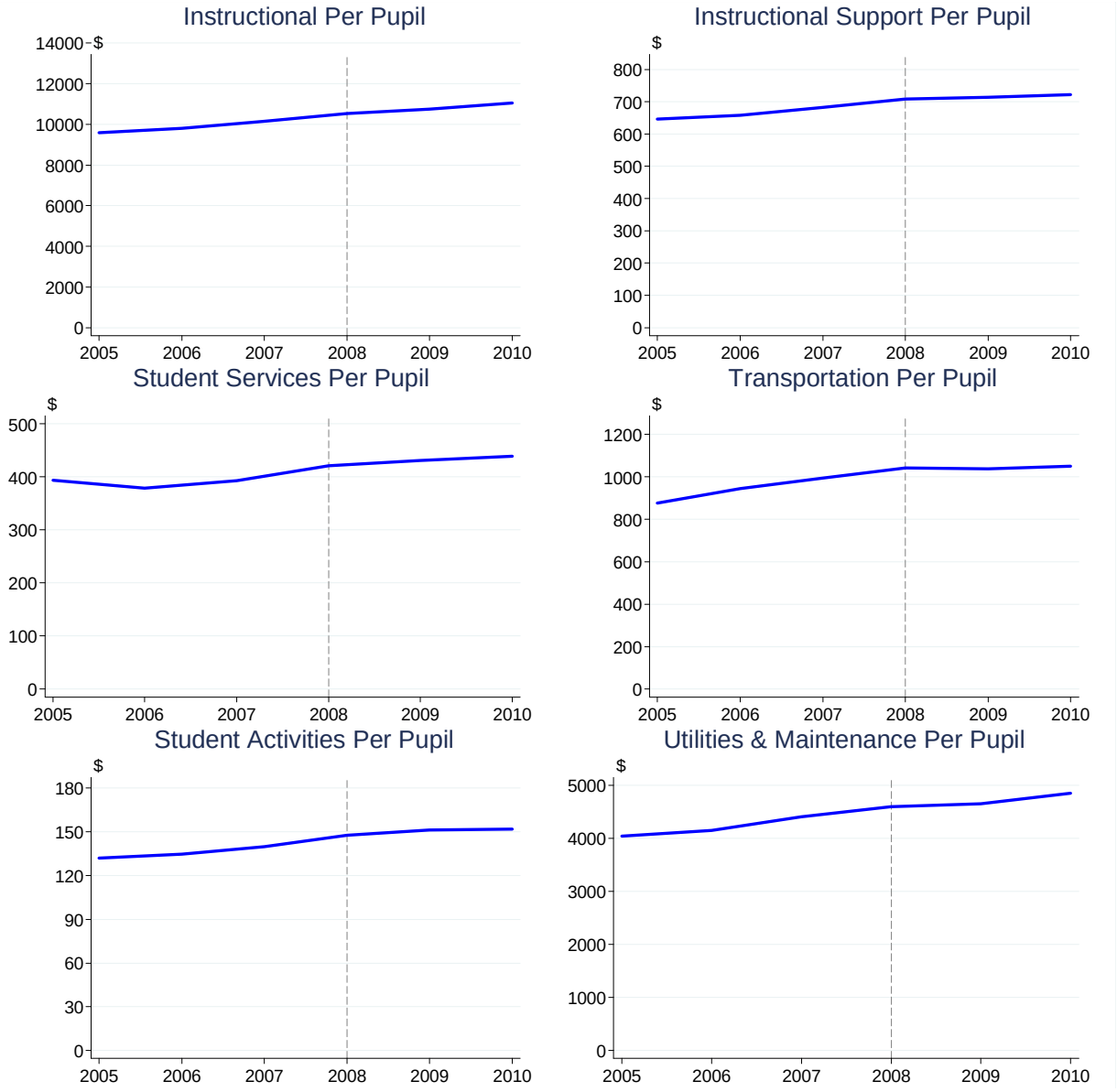
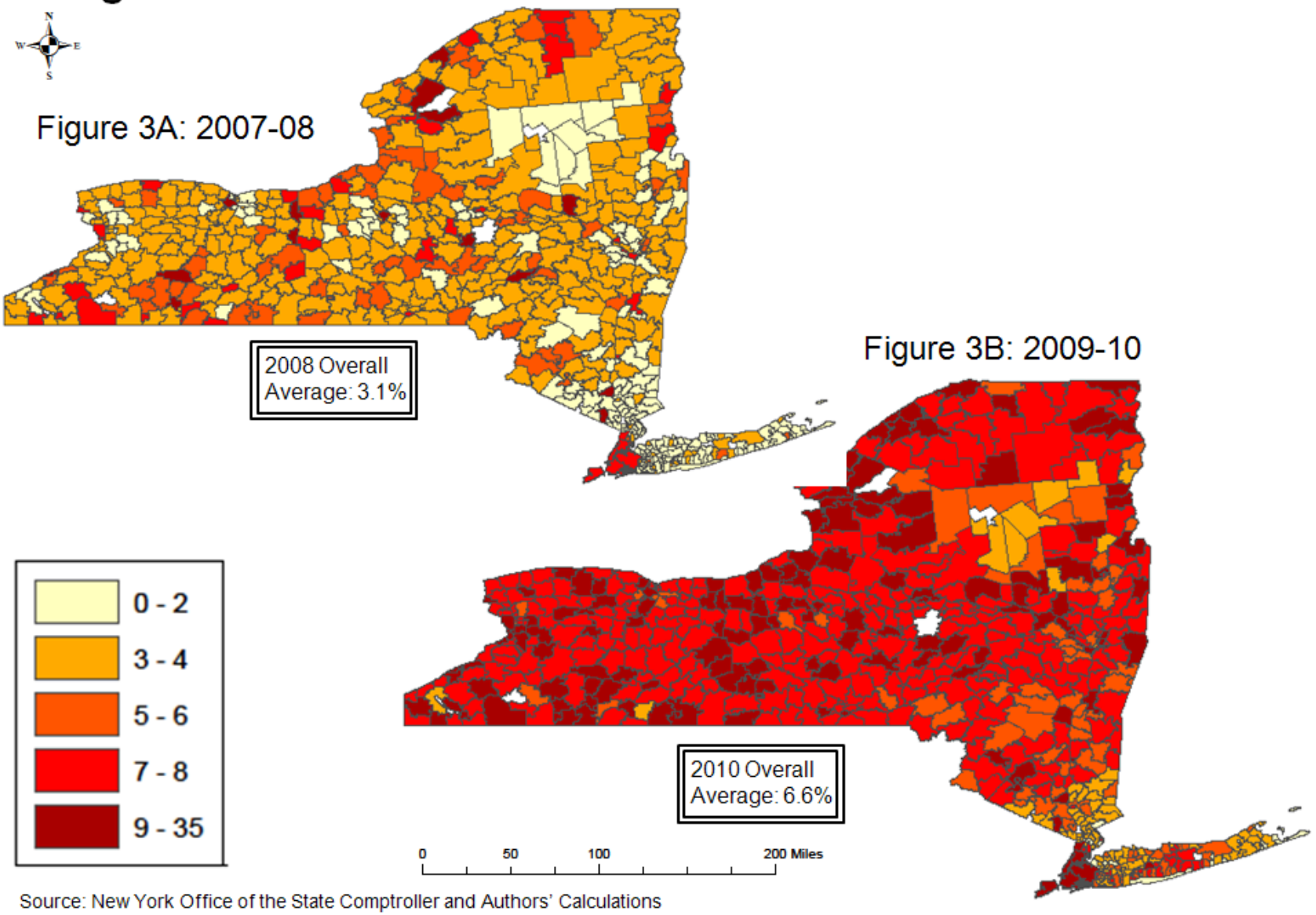


Figure 3: Percent of District Revenue from Federal Sources



Source: New York Office of the State Comptroller and Authors' Calculations

Figure 4: Examining Patterns in Revenues and Expenditures Per Pupil During the Great Recession and Federal Stimulus Period (Using Intercept Shifts)

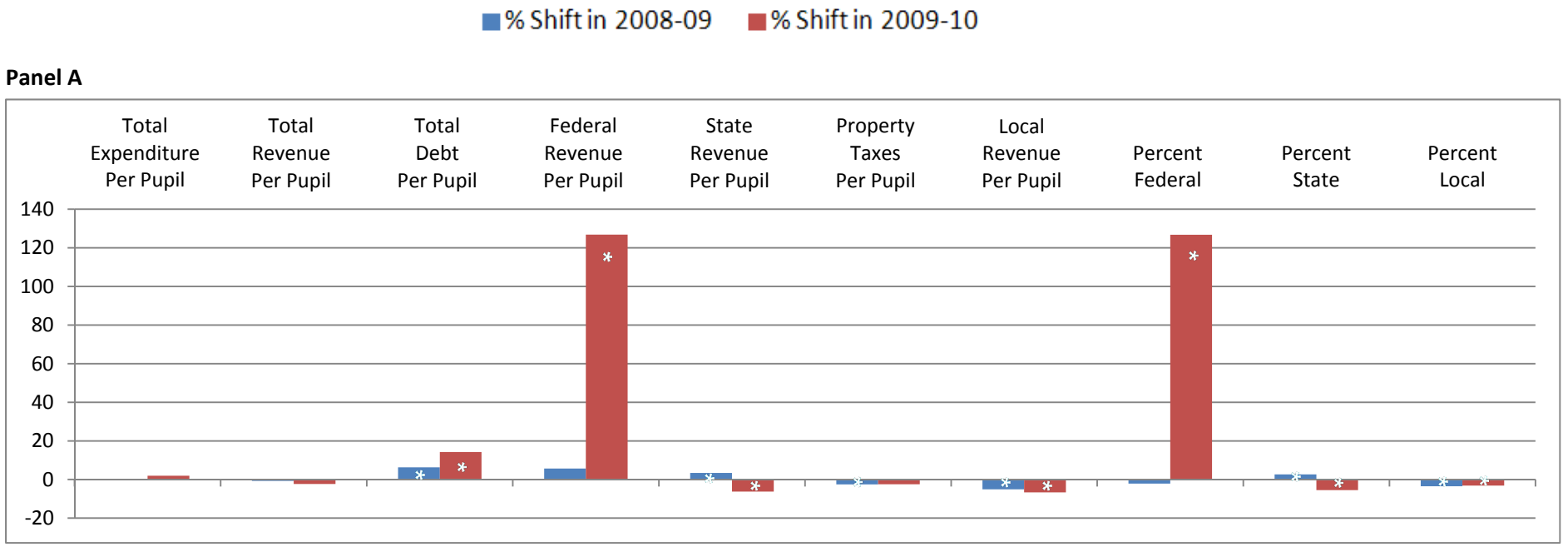


Figure 5A: Examining Heterogeneities in Revenues and Expenditures Per Pupil by School District Poverty Status (Using Intercept Shifts)

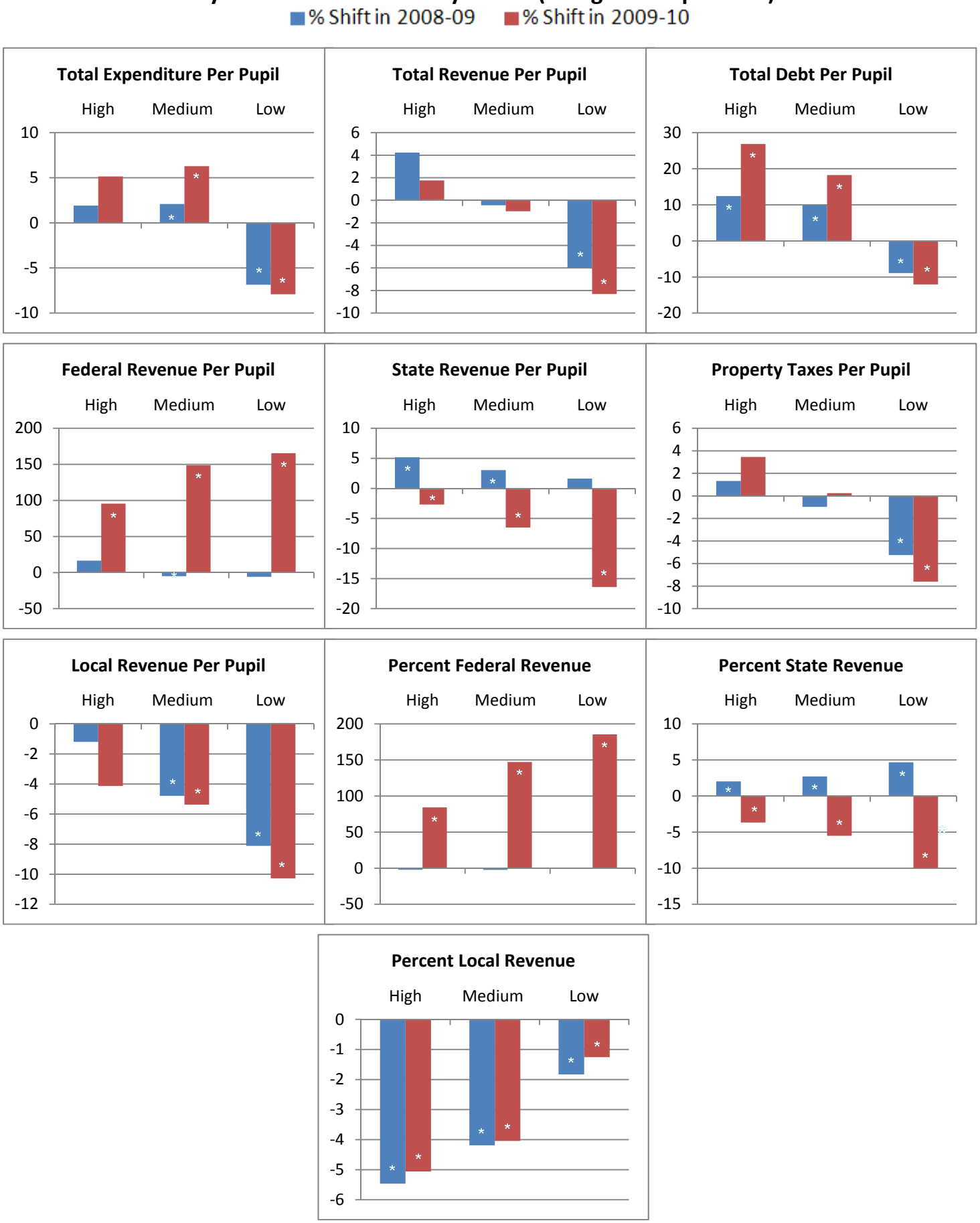


Figure 5B: Examining Heterogeneities in Expenditure Categories by School District Poverty Status (Using Intercept Shifts)

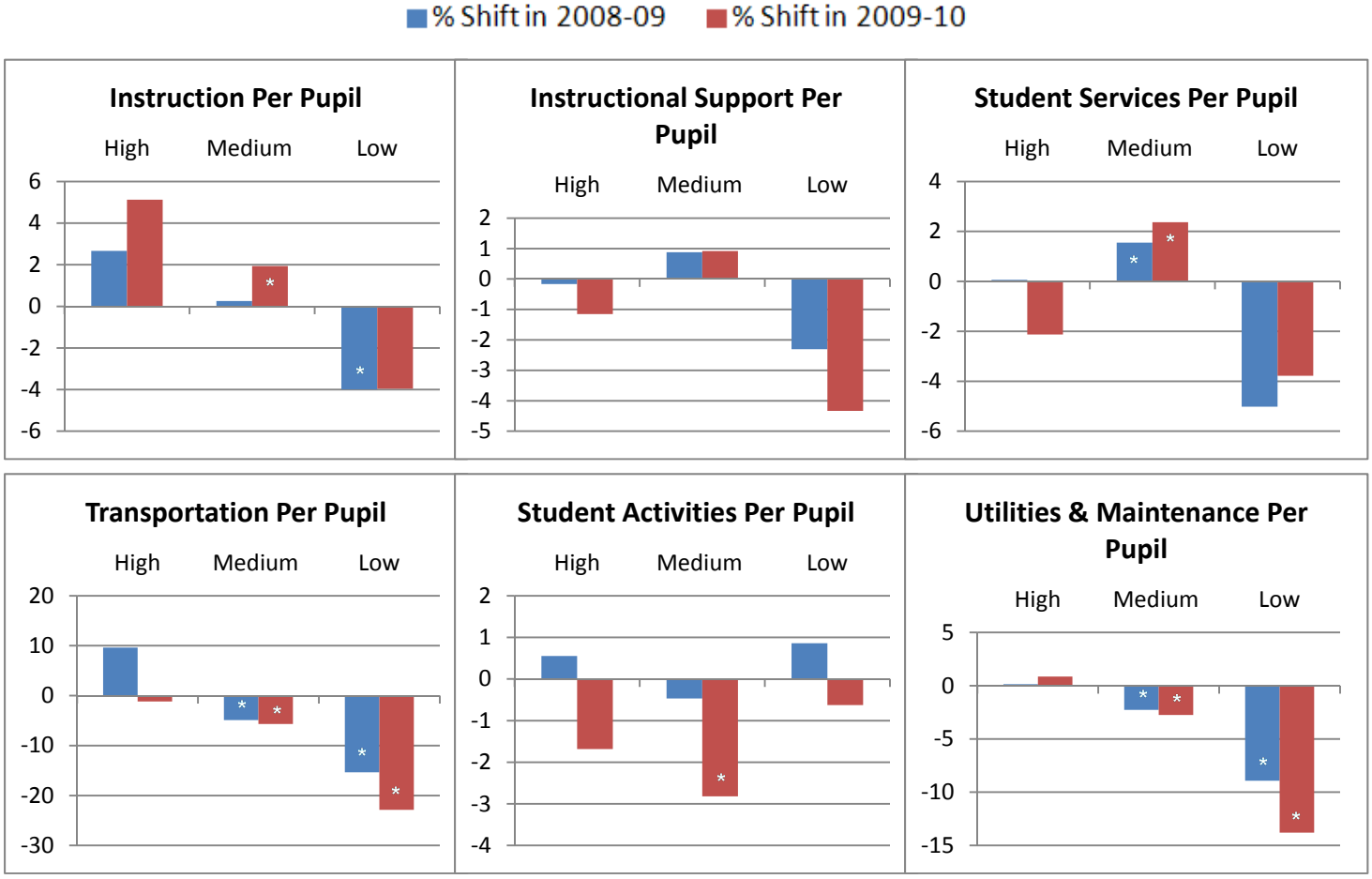


Figure 6A: Examining Heterogeneities in Revenues and Expenditures Per Pupil by Metropolitan Area (Using Intercept Shifts)

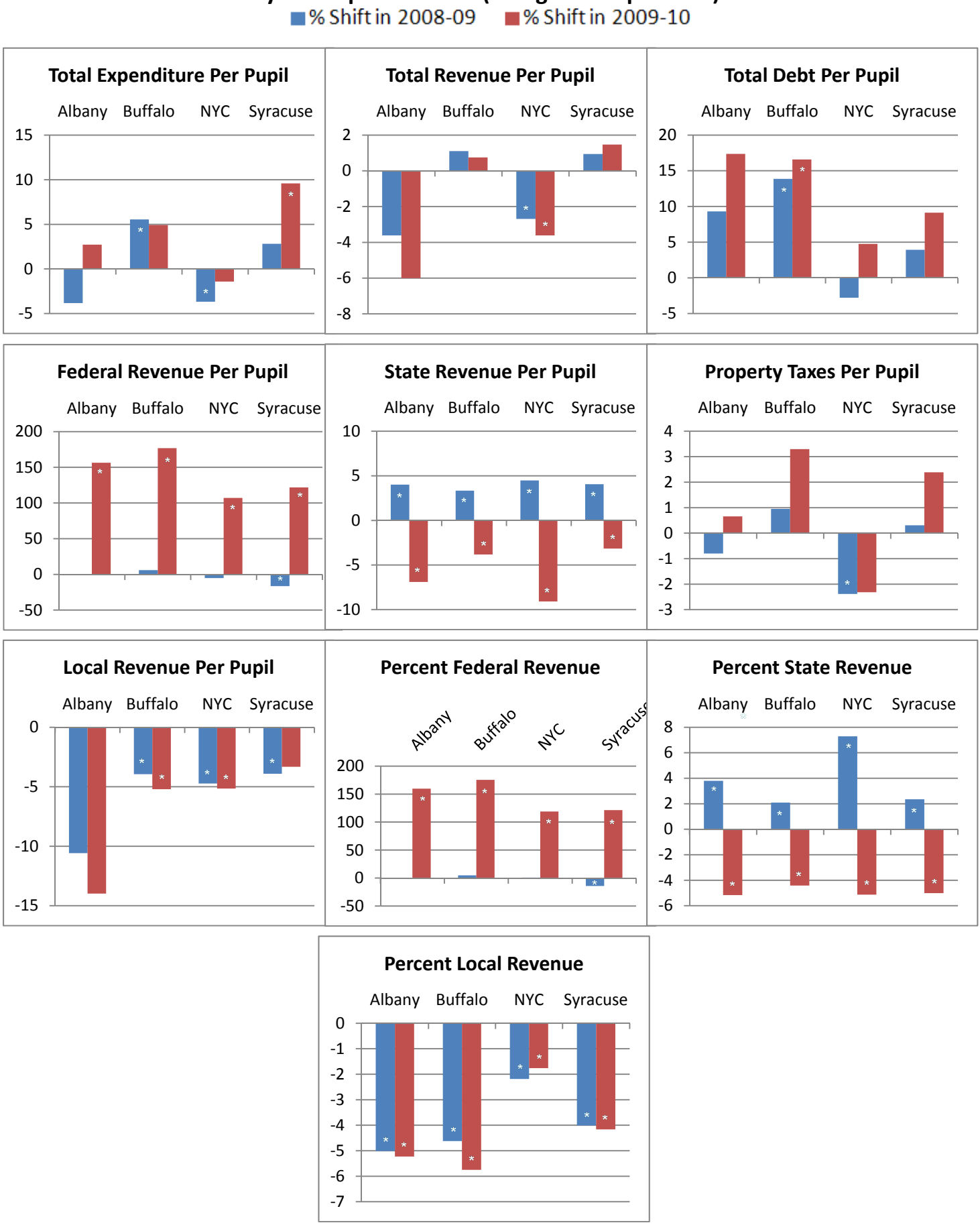


Figure 6B: Examining Heterogeneities in Expenditure Categories by Metropolitan Area (Using Intercept Shifts)

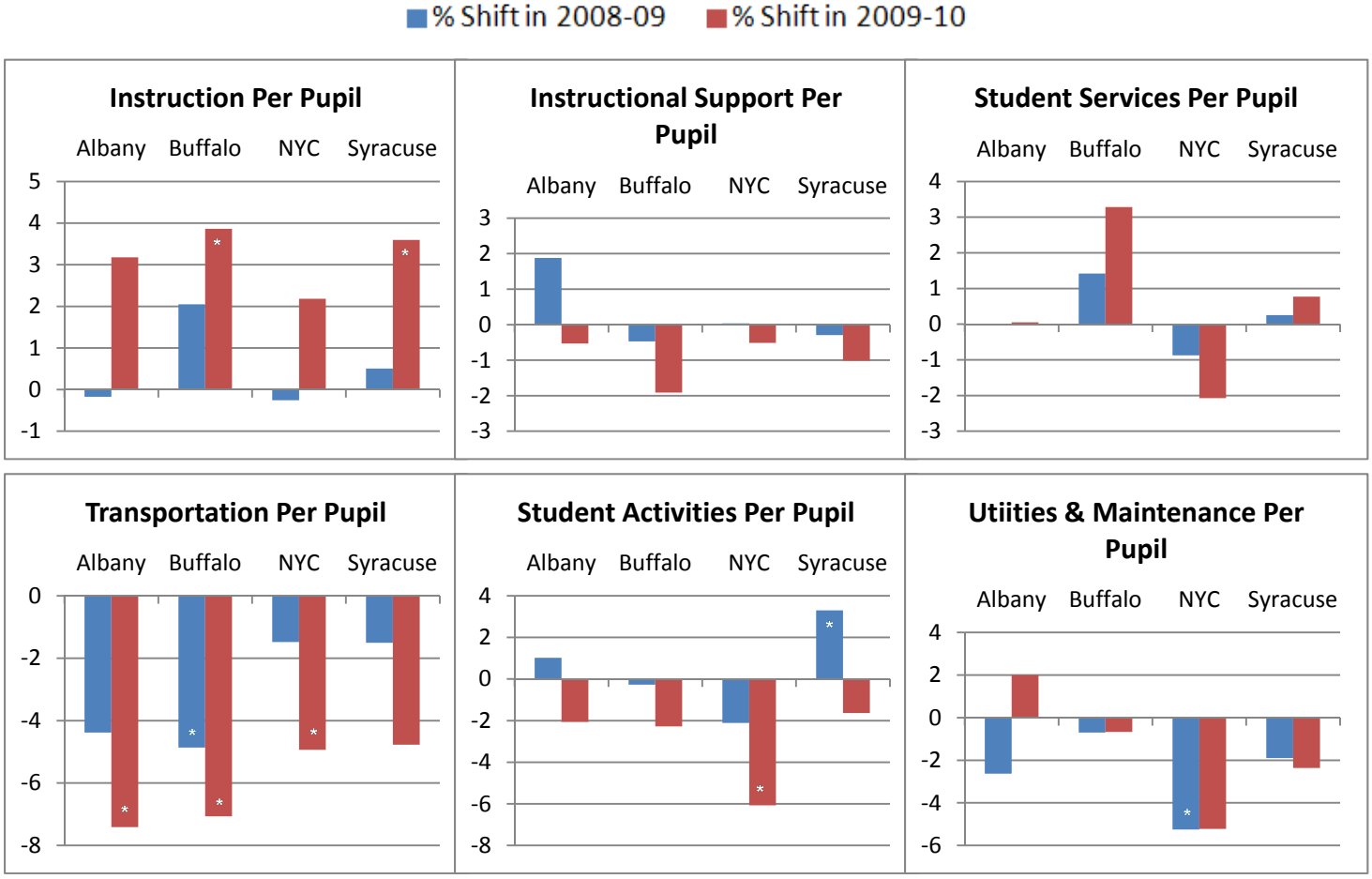


Figure 7A: Examining Heterogeneities in Revenues and Expenditures Per Pupil by District Size (Using Intercept Shifts)

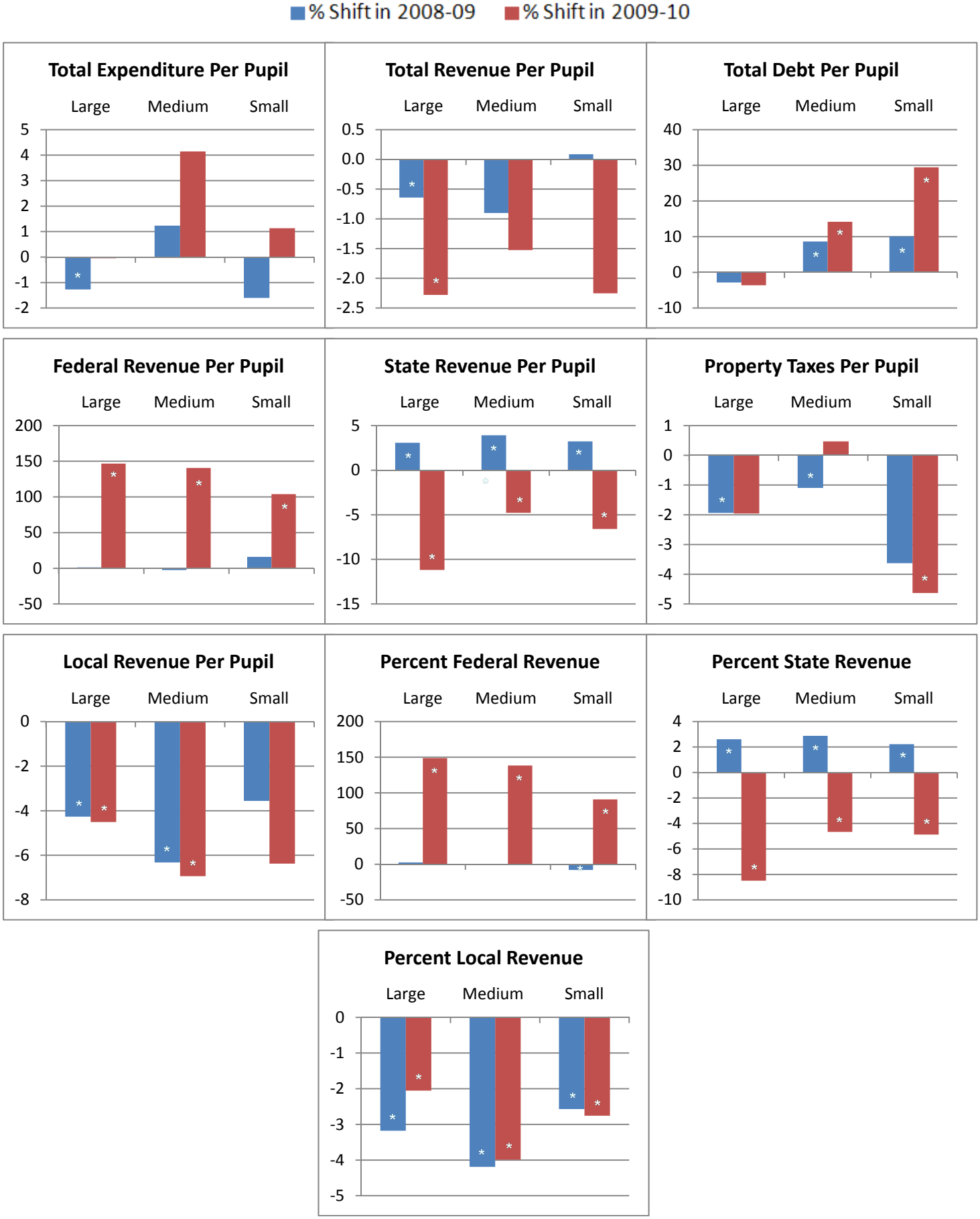


Figure 7B: Examining Heterogeneities in Expenditure Categories by School District Size (Using Intercept Shifts)

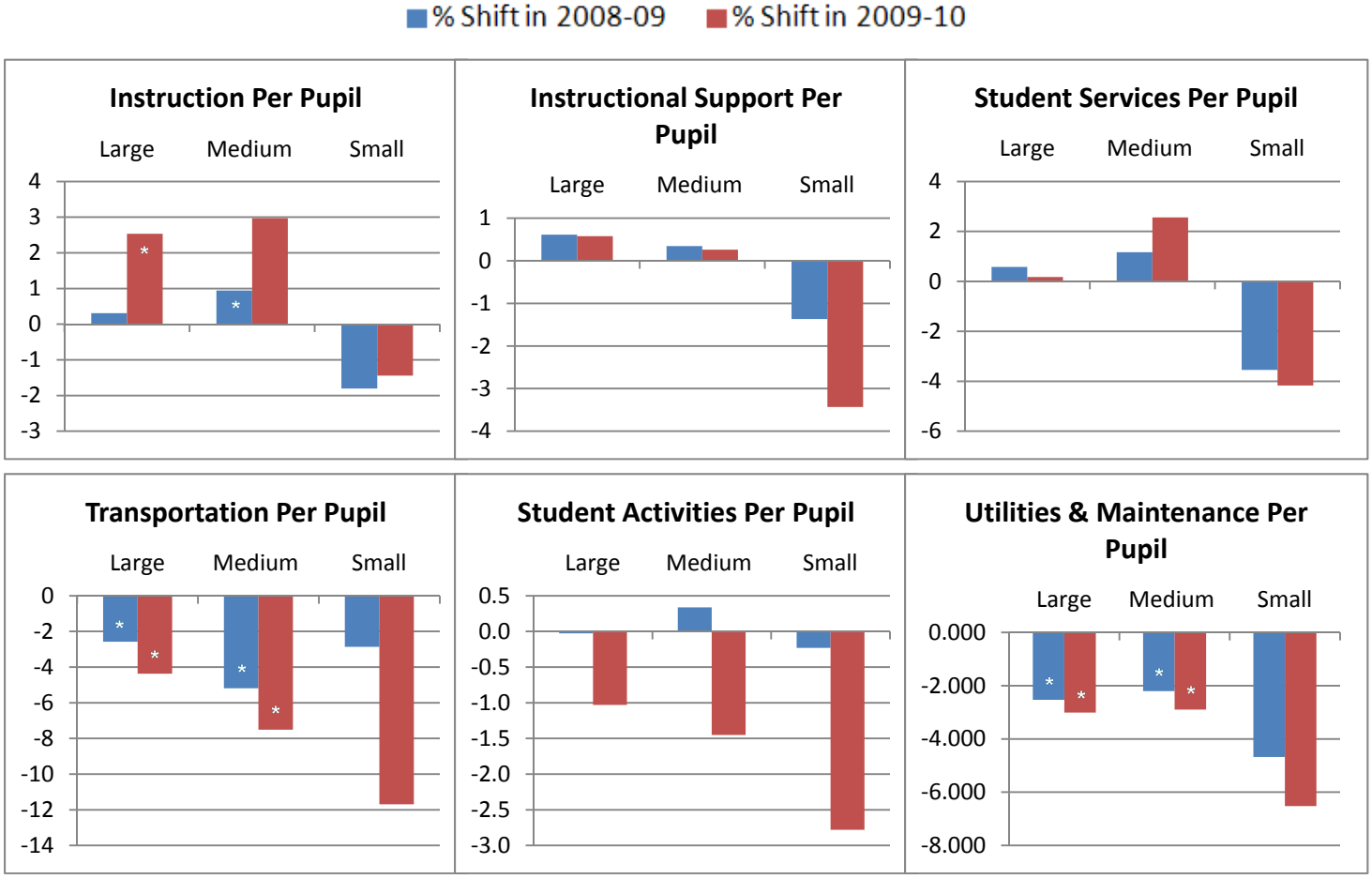


Figure 8A: Examining Heterogeneities in Revenues and Expenditures Per Pupil by Urban Status (Using Intercept Shifts)

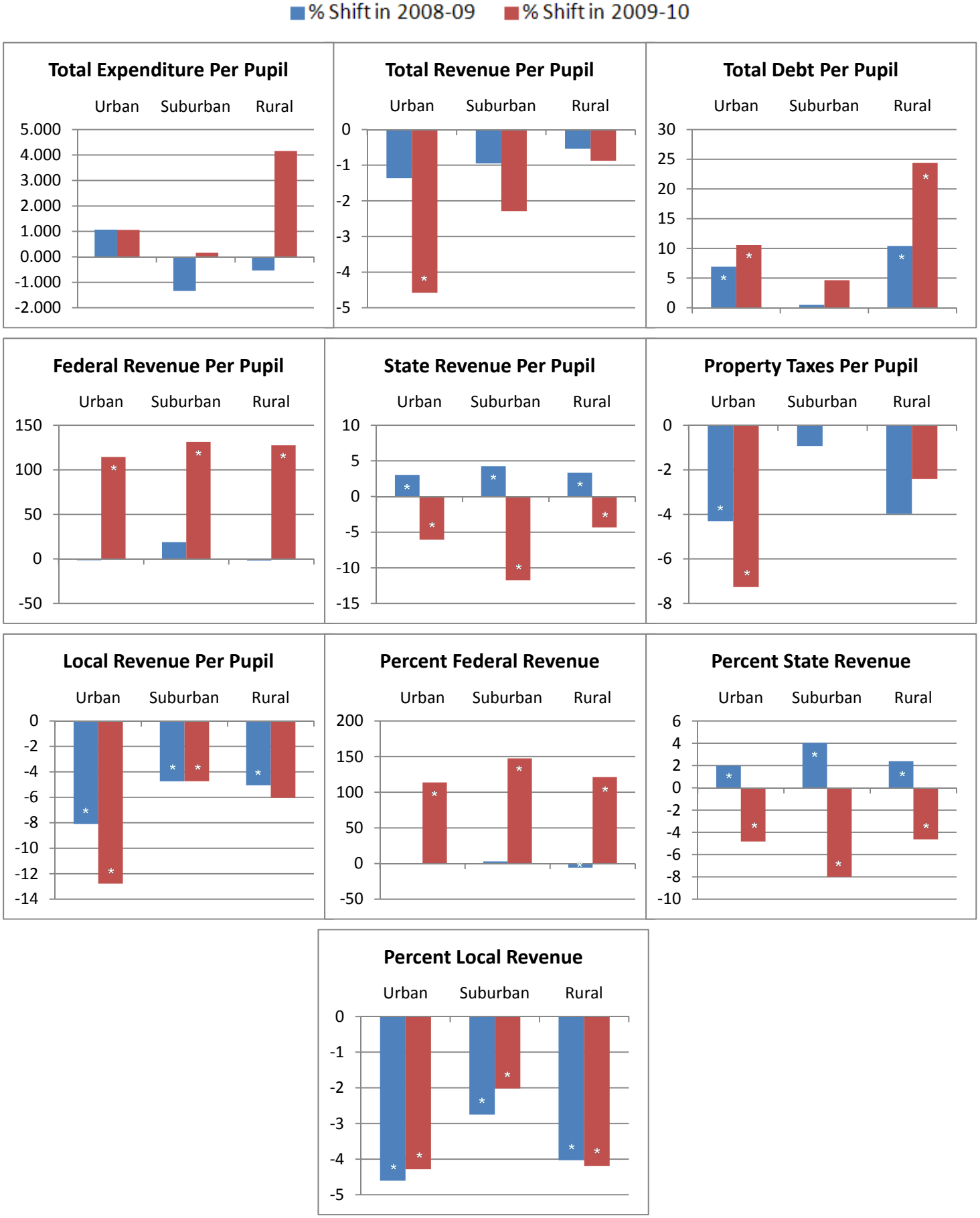


Figure 8B: Examining Heterogeneities in Expenditure Categories by Urban Status (Using Intercept Shifts)

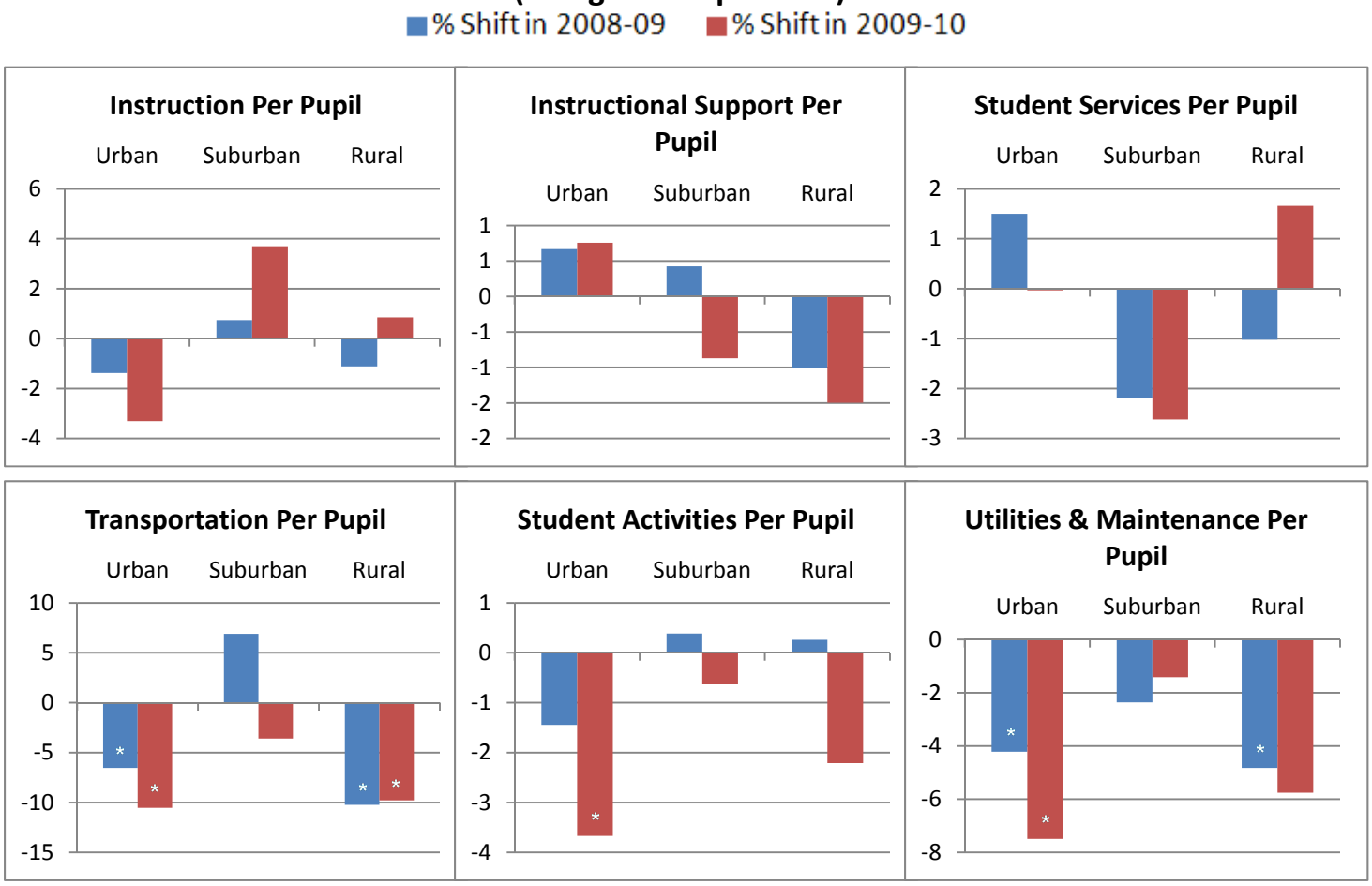


Figure 9: Examining Heterogeneities in Revenues and Expenditures Per Pupil in the Big Five Districts (Using Intercept Shifts)

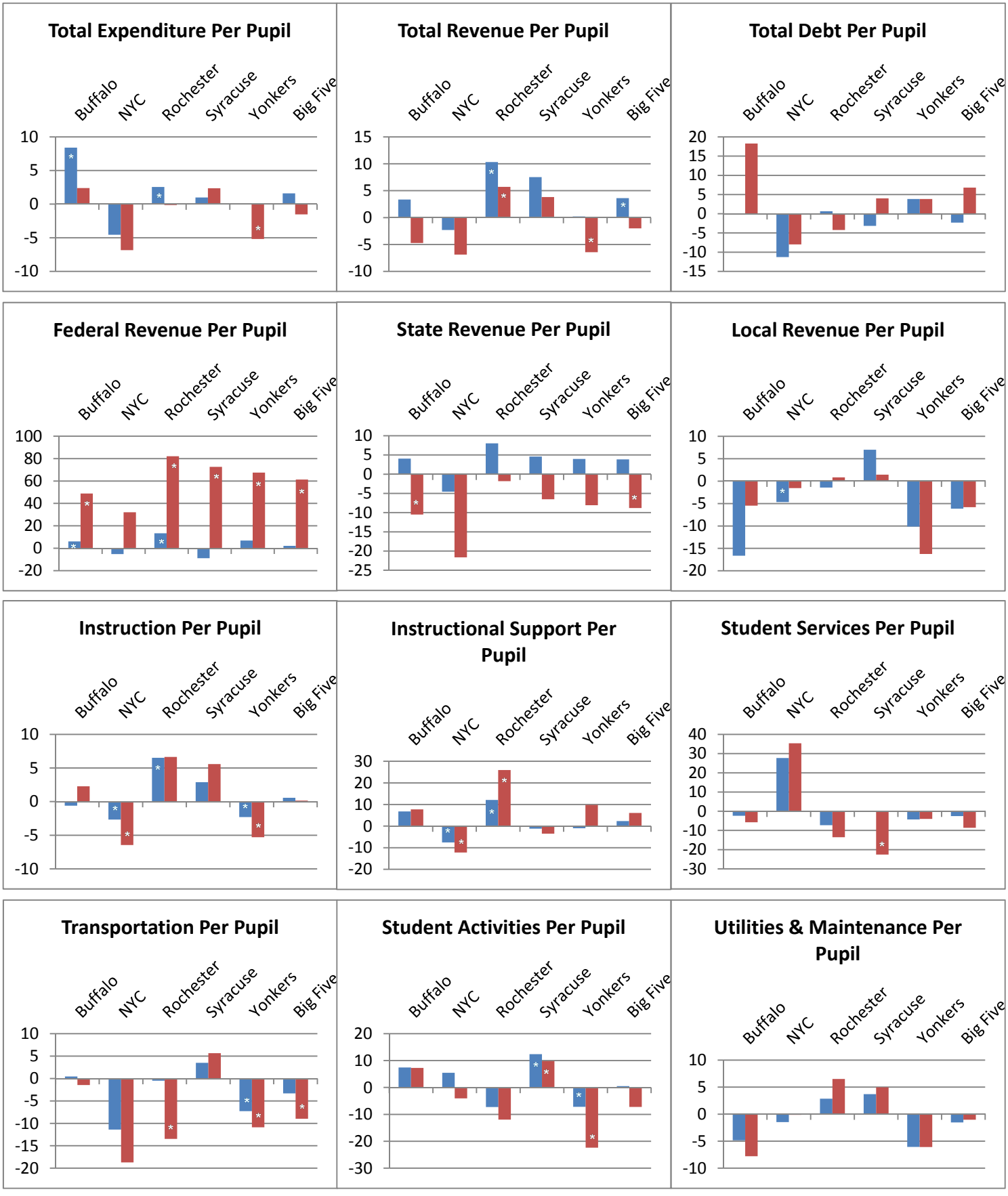


Figure A1: Examining Heterogeneities in Revenues and Expenditures Per Pupil by Metropolitan Area (Using Intercept Shifts)

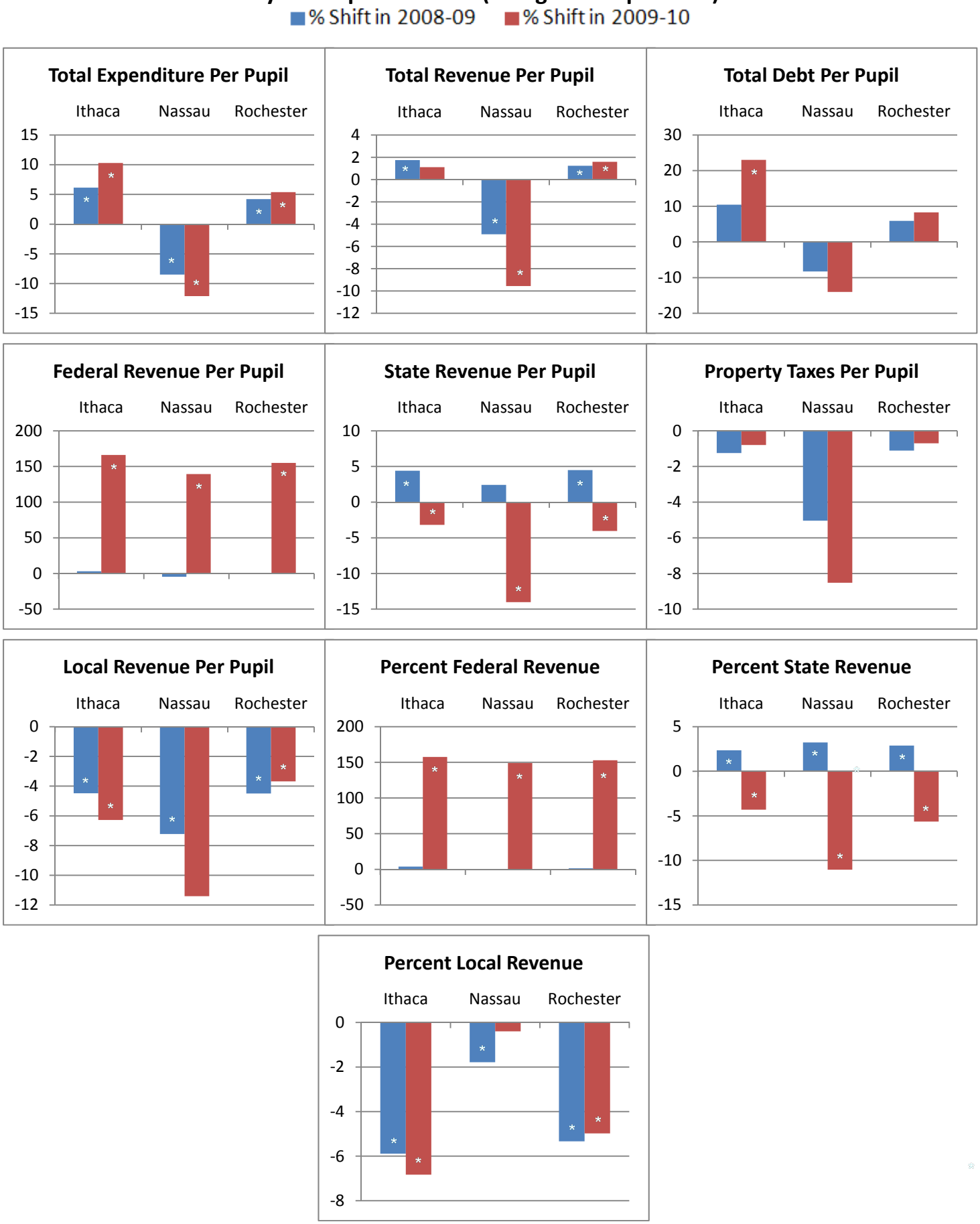


Figure A2: Examining Heterogeneities in Expenditure Categories by Metropolitan Area (Using Intercept Shifts)