

A TALE OF TWO STATES: THE RECESSION'S IMPACT ON N.Y. AND N.J. SCHOOL FINANCES

- Despite the importance of schools to economic growth, little research exists on the effects of recessions on school finances.
- This study compares the experiences of school districts in New York and New Jersey in the wake of the 2007-09 recession.
- In 2009 and 2010, New Jersey's total per pupil funding fell sharply compared with pre-recession trends, while New York's stayed on trend. New Jersey's bigger cuts in state aid and smaller increases in federal funding drove the split. Spending, meanwhile, decreased in New Jersey but remained on trend in New York.
- The states' differing demographics, budget laws, and state tax revenue experiences all contributed to these divergent outcomes.

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1. INTRODUCTION

It is important, from both a scholarly and a policy perspective, to understand the impact of the Great Recession and the subsequent federal stimulus program on school finances. To this end, previous articles in the *Economic Policy Review* have studied the effects of these developments on school district finances in New York (Chakrabarti, Livingston, and Setren 2015) and New Jersey (Chakrabarti and Sutherland 2013) and uncovered some important patterns. While both states faced declining revenues and widening budget gaps, their education finance experiences exhibited meaningful differences. These differences were evident both on the funding side and in the spending decisions of the states' school districts. The objective of this article is to present and study these differences, drawing from the two articles mentioned above. Such a comparative analysis promises to deepen our understanding of the experiences of school districts across our region, and may also help inform policymakers about appropriate responses to fiscal duress. To the best of our knowledge, this is the

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first article that seeks to understand how the impact of the Great Recession on school finances varied across states.¹

Our study reveals some interesting contrasts between districts in New York and New Jersey. In the two post-recession years we consider (2009 and 2010), New Jersey's total per pupil funding sustained deep cuts relative to trend, while New York's remained on trend. The composition of district funding also changed in different ways in the two states. Although both states experienced large increases in federal funding as a result of the stimulus, New York saw its per pupil federal aid more than double—a substantially larger increase than that in New Jersey. Additionally, while both states saw reductions in state funding, New Jersey districts experienced markedly larger cuts in state aid relative to their counterparts in New York. Total expenditures, meanwhile, followed a pattern similar to that of total funding, remaining on trend in New York and falling significantly in New Jersey.²

To further understand the differences in school finance patterns between the two states, we take a detailed look at factors influencing the components of aid. Our analysis reveals that differences in demographic composition, in how state tax revenues fared, and in budget laws were important factors behind the patterns noted above. New Jersey's declines in state tax revenue and its strict budget laws combined to create particularly tough fiscal circumstances.

We begin our analysis by exploring the funding differences between New York and New Jersey in detail.

2. CONTRASTING SCHOOL FUNDING IMPACTS: NEW YORK AND NEW JERSEY

In this section, we use trend shift analysis to identify the changes in education financing in New York and New Jersey brought about by the Great Recession and the federal stimulus program (see the box on the next page for details on our methodology and data). In Charts 1 through 8, the green

¹ This article belongs to the literature on school district funding. Stiefel and Schwartz (2011) find evidence that large increases in per pupil funding occurred in New York City during 2002-08. Rubenstein et al. (2007) find that, in general, higher-poverty schools received more funding per student. Baker (2009) finds that for schools in Texas and Ohio, resources vary according to student needs within districts. On the expenditure side, Bedard and Brown (2000) study the impacts of various within-district allocation strategies.

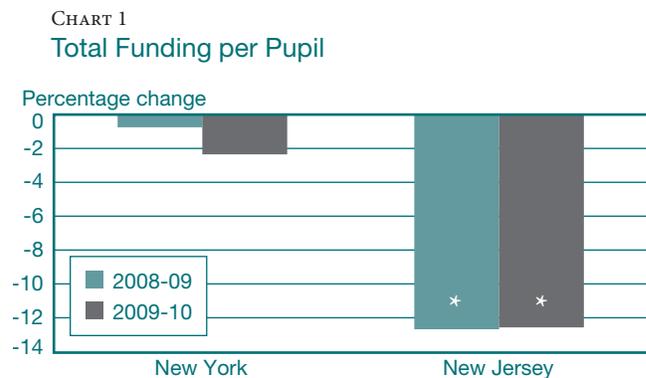
² This study pertains solely to school finances in these districts. Educational outcomes (or any other outcomes) in these districts are beyond the scope of this article.

bar represents the 2009 shift for each state and the gray bar represents the 2010 shift. Each of the charts shows values for both New York and New Jersey. We refer to school years by the year corresponding to the spring semester (for example, 2009 refers to the 2008-09 school year).

Chart 1 shows the shifts in per pupil funding for both states, relative to the corresponding pre-recession trends. While per pupil funding remained on trend in New York, funding in New Jersey fell sharply. New York districts experienced only small declines, and they were not statistically significant. New Jersey experienced large declines of around 12 percent in both years, and each shift was statistically significant.

In addition to differences in how overall funding changed, there were also important variations in how the composition of that funding changed. Most public school funding comes from three government sources: the federal government, the state government, and local government. Historically, school districts rely most heavily on local and state aid. The former is raised by school districts and comes mostly from property taxes, while the latter is funded largely through state income taxes and sales taxes. In the pre-recession period (2008), New York districts received 3 percent of financing from federal aid, 40 percent from state aid, and 56 percent from local funding. Meanwhile, New Jersey districts received approximately 2.5 percent of financing from federal aid, 34 percent from state aid, and 63 percent from local funding.

The recession and stimulus resulted in significant changes in the composition of district funding, but these shifts look different for New York and New Jersey. Relative to pre-recession trends, both states experienced a statistically significant boost in per pupil federal aid in 2010 from



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

Data and Methodology

As noted in the text, this article draws on two previous studies of school financing.^a Our New York and New Jersey studies employed a trend shift analysis using school finance data obtained from the New York Office of the State Comptroller and the New Jersey Department of Education Finance Office, respectively.^b The specification estimated in both studies is as follows:

$$Y_{it} = \alpha_1 t + \alpha_2 v_1 + \alpha_3 v_2 + \alpha_4 X_{it} + f_i + \mathcal{E}_{it},$$

where Y_{it} is a financial indicator for school district i in year t ; t is a time trend variable that equals 0 in the immediate pre-recession year (2008) and increases by 1 for each subsequent year and decreases by 1 for each previous year; v_1 is a dummy representing the recession, $v_1 = 1$ if year > 2008 and 0 otherwise; v_2 is the stimulus dummy, $v_2 = 1$ if year > 2009 and 0 otherwise; X_{it} represents the demographic characteristics of the school district (racial composition and percentage of students eligible for free or reduced-price lunches); and f_i denotes district fixed effects.

All financial variables are inflation-adjusted to 2009 dollars. All regressions include district fixed effects and demographic controls. The results are robust to the inclusion or exclusion of covariates.

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. And α_3 captures any additional shift in 2009-10, the year the stimulus was implemented and school districts received an infusion of funds. The intuition driving this estimation strategy is as follows: Had there been no recession, we would expect school finances to continue growing at their pre-recession trend. The post-recession effects (α_2 and $(\alpha_2 + \alpha_3)$) are captured by shifts from this trend in the post-recession period (2009 and 2010). To quantify the relative change in each financial variable, we compute the percentage shifts obtained by expressing the shifts α_2 and $\alpha_2 + \alpha_3$ from the

^a For more details on the data and empirical methodology, see Chakrabarti, Livingston, and Setren (2015) and Chakrabarti and Sutherland (2013).

^b Data for the analysis come from multiple sources. For New York, we use school district financial report data from the New York Office of the State Comptroller, which cover all school districts in New York for the 2005 to 2010 school years. The report includes information on funding, expenditure, enrollment, and various components of funding and expenditure. New Jersey data are obtained largely from the New Jersey Department of Education's Office of School Finance and cover the same period. Like the New York data, the New Jersey data cover funding and expenditure and the components of each, as well as enrollment information. Components of expenditure include instructional expenditures, instructional support, student services, utilities and maintenance, transportation, and student activities. See the table in this box for a more detailed breakdown. We also use data from the National Center for Education Statistics to supplement finance and demographic figures.

Definitions of Expenditure Components

	Instruction
Instructional expenditures	All expenditures associated with direct classroom instruction, including teacher salaries and benefits, classroom supplies, and instructional training
	Noninstruction
Instructional support	All support service expenditures designed to assess and improve students' well-being, including food services, educational television, library, and computer costs
Student services	Psychological, social work, guidance, and health services
Utilities and maintenance	Heating, lighting, water, and sewage; operation and maintenance
Transportation	Total expenditures on student transportation services
Student activities	Extracurricular activities, including physical education, publications, clubs, and band

specification as percentages of the pre-recession (2008) base of the corresponding financial variable (Y_{it}). This pre-recession base is simply the average across school districts of each Y_{it} in the 2008 school year. Percentage effects are easily interpreted and compared between states and are thus more informative than simply looking at the coefficients (α_2 and α_3).

For this article, we report just the two percentage shifts; corresponding results for the regression coefficients are reported in Chakrabarti, Livingston, and Setren (2015) and Chakrabarti and Sutherland (2013). First, we report the 2009 percentage shift immediately following the recession, calculated as $\frac{\alpha_2}{\text{pre-recession base}}$ for each finance variable (Y_{it}). Second, we report the percentage shift in 2010, calculated as $\frac{\alpha_2 + \alpha_3}{\text{pre-recession base}}$ for each finance variable (Y_{it}). The first percentage shift captures the effect of the recession in 2009 and the latter captures the combined effect of the recession and the federal stimulus in 2010. In Charts 1 through 8, these percentage shifts are plotted. Bars labeled "Percentage shift in 2008-09" reflect $\frac{\alpha_2}{\text{pre-recession base}}$ and bars labeled "Percentage shift in 2009-10" reflect $\frac{\alpha_2 + \alpha_3}{\text{pre-recession base}}$.

Data and Methodology (Continued)

Interpretation of the Post-Recession Effects

There is an important caveat to this strategy. The estimates from the specification capture shifts from the pre-existing trend of the corresponding financial variables. However, the specification does not control for any other relevant shocks that might have taken place in the two years following the recession and affected these financial variables. To the extent that there were such shocks that affected our outcomes, our estimates will be biased. 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. Moreover, we did extensive research to assess the presence of shocks (such as policy changes) that might affect our outcome variables of interest independently of the recession and stimulus, and we found no evidence of such bias. For a more detailed discussion, see Chakrabarti, Livingston, and Setren (2015) and Chakrabarti and Sutherland (2013).

the stimulus, but New York’s was an order of magnitude larger than New Jersey’s (roughly 120 percent versus 13 percent), as shown in Chart 2.

This differential impact of the federal stimulus is also clearly visible in the maps presented in Exhibit 1, which demonstrate a few key points. Within each state there is a great deal of variation in the amount of federal aid districts receive, but despite these heterogeneities the stimulus’ impact is clearly visible across almost all districts in each state. When we compare the two states, however, it is clear that New Jersey districts relied less on federal aid both before and after the stimulus. The maps also show that not only was the effect of the stimulus much larger in New York, it was also more widespread.

State finances were severely constricted during this period. As a result, both New York and New Jersey cut spending on K-12 education. However, New Jersey districts experienced

CHART 2
Federal Funding per Pupil



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

CHART 3
State Funding per Pupil



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

CHART 4
Local Funding per Pupil

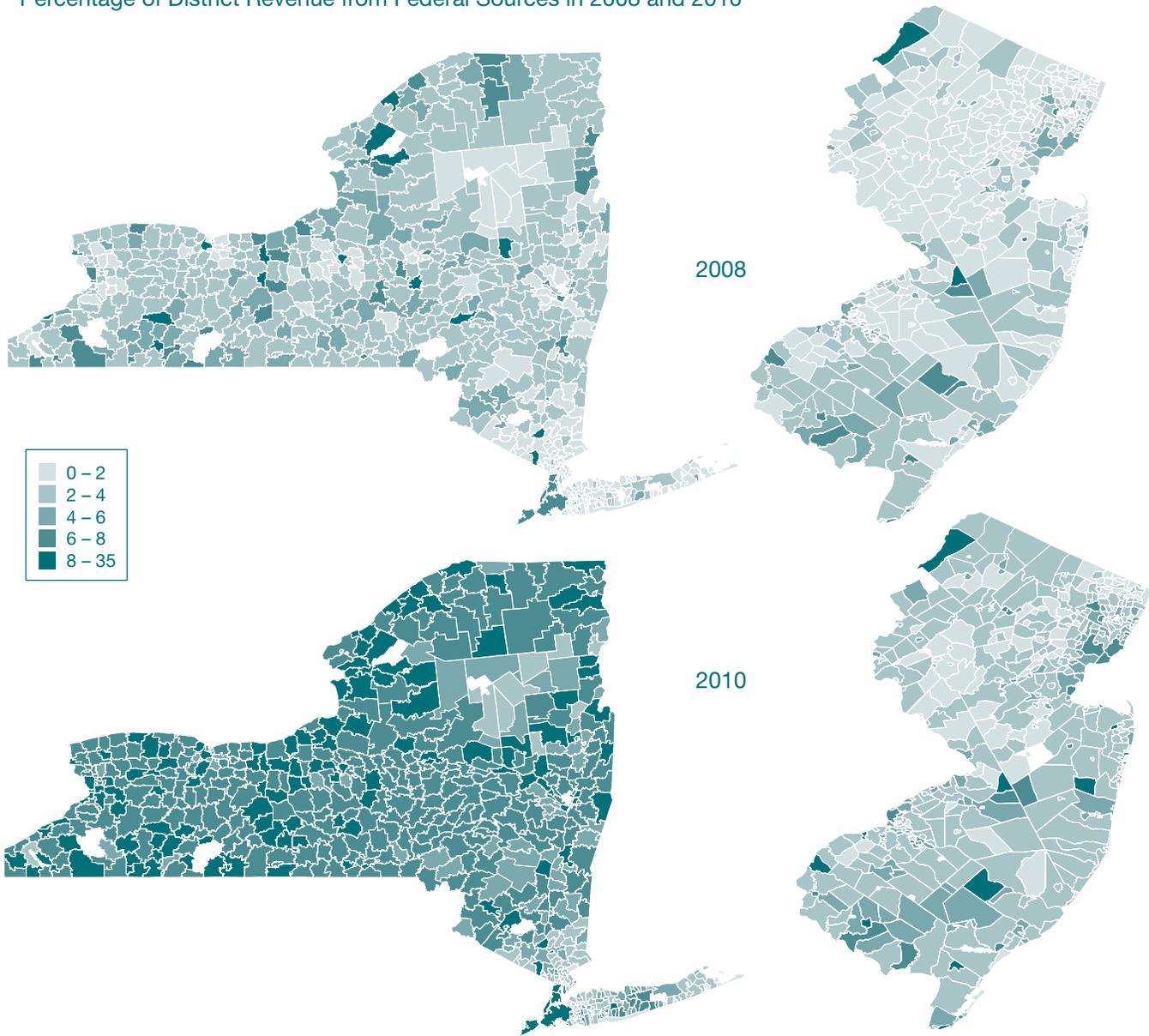


Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

ЕХНІВІТ 1

Percentage of District Revenue from Federal Sources in 2008 and 2010



Sources: New York Office of the State Comptroller; New Jersey Department of Education; authors' calculations using U.S. Census Bureau shape files.

much larger cuts than New York's did, as demonstrated in Chart 3. In the first year after the recession, New York districts actually experienced a small, statistically significant increase in state aid while New Jersey districts experienced a small, statistically significant decline. In 2010, the situation worsened for both states, with New York districts seeing a statistically significant decrease in state funding of about 5 percent while New Jersey districts' state funding dropped by almost 20 percent.

Turning to local financing, we find that school districts in New York saw larger cuts to local funding than New Jersey's did in both post-recession years (Chart 4). Nevertheless, compared with the differences in state and federal aid shifts, the differences are quite small. As a result, when we address the overall differences between New York and New Jersey in Section 4, we focus our attention on factors that drove the federal and state aid patterns in the two states.

3. CONTRASTING SCHOOL EXPENDITURE IMPACTS: NEW YORK AND NEW JERSEY

The disparity in total funding patterns between the two states is reflected in the states' spending patterns. On the one hand, New York districts experienced no statistically significant shift from trend in total expenditure per pupil (see Chart 5). New Jersey districts, on the other hand, experienced large and statistically significant cuts to expenditure in both post-recession years.

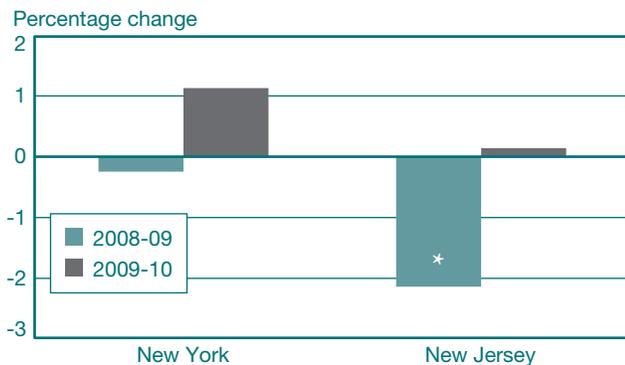
CHART 5
Total Expenditure per Pupil



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

CHART 6
Instructional Expenditure per Pupil



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

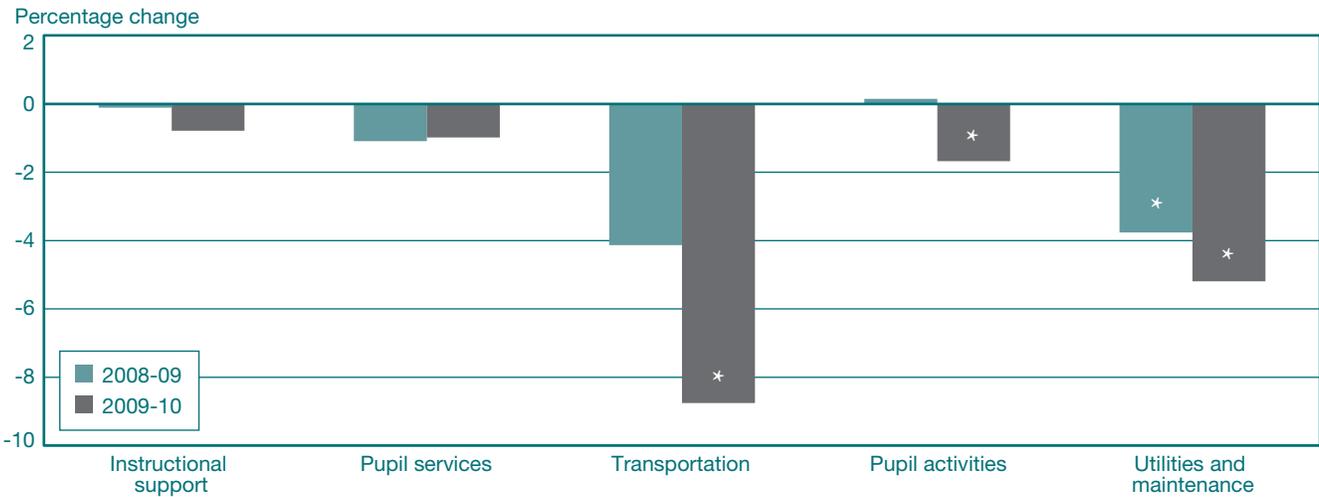
Digging deeper, we find that the two states allocated their expenditures quite differently. Instructional expenditure—the category considered to have the most direct impact on student learning—remained on trend in New York during both years (Chart 6). In New Jersey, districts cut instructional expenditure in the first year after the recession but then made no significant reductions in the second year, likely owing to the impact of the stimulus, which sought to preserve teacher salaries and employment.

The components of noninstructional expenditure were also affected differently in New York than in New Jersey. In general, New York districts made fewer and smaller cuts. Spending on instructional support and pupil services did not deviate significantly from trend in New York, while in New Jersey expenditures on both components fell in 2009 (see Charts 7 and 8). Student activities were cut in New York in 2010 but remained on trend in New Jersey. Transportation received the biggest reductions in both states, and these cuts were statistically different from zero in 2009 for New Jersey and in 2010 for New York. Both states cut utilities and maintenance (“utilities”) significantly in both years. In the categories of student activities, transportation, and utilities, the decreases were larger in New York than in New Jersey—a reversal of other patterns (such as that for instructional spending), in which New Jersey districts experienced larger declines than New York districts.

4. UNDERSTANDING THE CONTRAST

Our overview of education funding and expenditures reveals that, relative to the pre-recession trend, education finance fared perceptibly better in New York in the post-recession period than in New Jersey. Why might this have been the case? In this section, we consider the two funding channels that show the greatest differences: federal and state aid. To investigate these disparities, we will consider federal allocation formulae and revenue trends at the state level. Further, we will discuss some of the legal pressures surrounding budget decisions. As we will show, an interaction of both funding and budget-related issues created a fiscal situation for New Jersey that was noticeably tighter than that for New York.

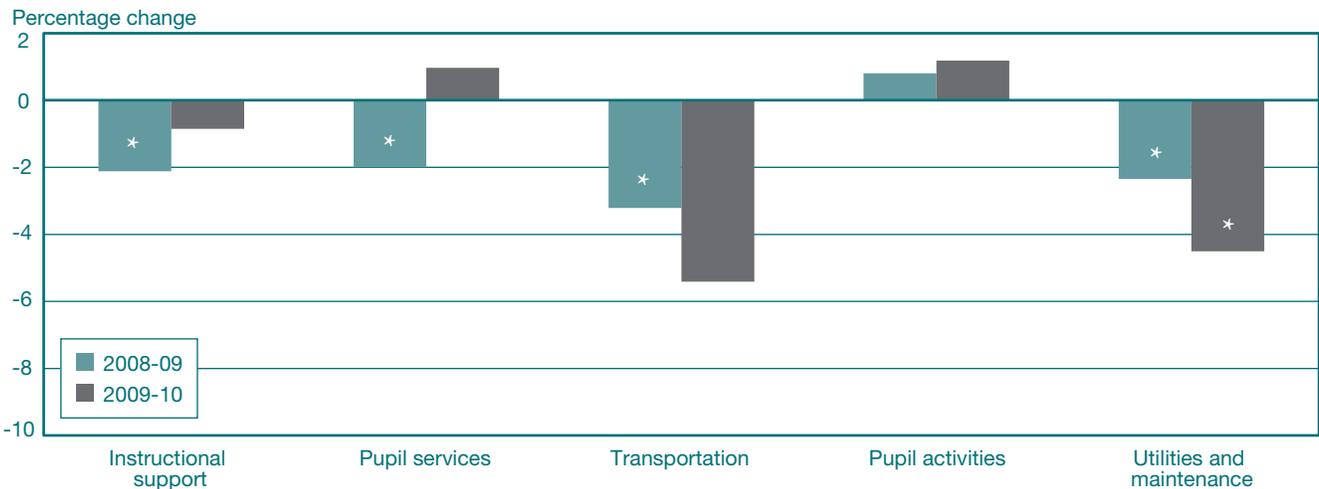
CHART 7
Noninstructional Expenditure in New York



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

CHART 8
Noninstructional Expenditure in New Jersey



Sources: New York Office of the State Comptroller; New Jersey Department of Education; National Center for Education Statistics.

* Significant at the 10, 5, or 1 percent level.

Allocation of ARRA Funds in New York and New Jersey

	New York (Millions of Dollars)	New Jersey (Millions of Dollars)	United States (Millions of Dollars)	N.Y.-N.J. Ratio
State Fiscal Stabilization Funds	3,799	1,330	53,600	2.86
Pell Grants	1,127	354	17,100	—
IDEA Grants, Parts B and C (special education)	821	385	12,200	2.13
Title I, Part A (low-income schools)	907	183	10,000	4.96
Race to the Top (competitively awarded)	700	0	3,325	—
Education technology grants	56	12	650	4.65
Vocational rehabilitation funds	26	9	540	2.72
Work-study funds	20	4	200	—
Independent Living Services fund	9	4	140	2.23
McKinney-Vento Homeless Assistance Grants	6	1	70	6.75
Total	7,470	2,282	97,825	—

Source: U.S. Department of Education.

Note: ARRA is the American Recovery and Reinvestment Act of 2009; IDEA is the Individuals with Disabilities Education Act.

4.1 Federal Aid

During the recession, significant shortfalls emerged in state budgets owing to sharp declines in property values and weakening state tax revenues as unemployment rose. In response, the federal government injected billions of dollars into state budgets nationwide through the American Recovery and Reinvestment Act (ARRA) of 2009. One hundred billion dollars of this injection was targeted for education, to lessen the impact of expected cuts to state and local education aid.

The largest portions of this aid were allocated through State Fiscal Stabilization Fund (SFSF) grants (\$53.6 billion), Title I funding (\$10 billion), Individuals with Disabilities Education Act (IDEA) grants (\$12.2 billion), and Pell Grants (\$17.1 billion). The table above shows how these and other ARRA funds were allocated within New York and New Jersey. Note that Pell Grants (as well as Federal Work-Study funds, also listed in the table) are allocated to postsecondary education and thus are not under consideration in this article.

Stark differences exist in the aggregate measures, with New York receiving \$4.4 billion more in aid than New Jersey. Some of these differences can be explained by demographic disparities in the two states. The SFSF allocation formula favors states with populations weighted toward the 5- to 24-year-old age cohort.³ In other words, a state

with mostly young people would receive more funding than a state of similar size but with an older population. At the time of allocation, the age distributions in New York and New Jersey were comparable, with about 26 percent of each state's population consisting of people aged 5-24, but New York's population exceeded New Jersey's by a factor of 2.2 to 1. New York had 6.2 percent of the nation's population in age group 5-24, while New Jersey had only 2.7 percent. With a significantly smaller population in age group 5-24, New Jersey was simply eligible for less funding under the SFSF formula.

The differences in Title I funding, which is targeted toward low-income areas, also reflected demographic differences between the two states. Funding for each school is based on the proportion of students in that school who come from low-income families. Between 2008 and 2010, approximately 46 percent of New York's students were eligible for free or reduced-price lunches (an approximation of the proportion of low-income students), while only 31 percent of New Jersey students were eligible for free or reduced-price lunches.

³ Sixty-one percent of the allocation was determined by the ratio of the state's population aged 5-24 to the national population aged 5-24. The remainder depended on the ratio of the state's total population to the national

Footnote 3 (continued)
population. For more information, visit the State Finance Stabilization Fund of the U.S. Department of Education website (<http://www2.ed.gov/policy/gen/leg/recovery/factsheet/stabilization-fund.html>).

IDEA grants, the third-largest category of ARRA funds,⁴ are distributed based on a formula that considers the number, age range, and poverty level of special education students. New York's larger allocation reflects its larger number of special needs students.

A significant portion of federal aid was also funneled to many states through Race to the Top (RTT), a program designed to reward states with high-performing schools. To receive this aid, states were required to submit an application and, based on a point system, the top ten were awarded funding commensurate with current needs and educational improvements made over the preceding year. In RTT's Round Two (held in mid-2010), New Jersey placed eleventh, after losing critical points for a minor application error.⁵ New York, which placed second, was awarded \$700 million.⁶

In summary, many of the discrepancies in federal aid between New York and New Jersey are explained, at least in part, by demographic requirements of that funding (in other words, New York was granted more money to cover greater need). Given New York's high proportion of low-income students—those who are likely to be among the hardest-hit by the recession—we can begin to make some sense of the patterns in federal aid.

4.2 State Aid

Turning to state aid, we see some important differences between New York and New Jersey. While New Jersey experienced a clear decline in state tax revenues through 2010, New York's tax revenues were nearly flat (see Charts 9 and 10). From 2008 to 2010, tax revenues in New York declined by only a little more than 2 percent, while New Jersey revenues saw a 15 percent decline.

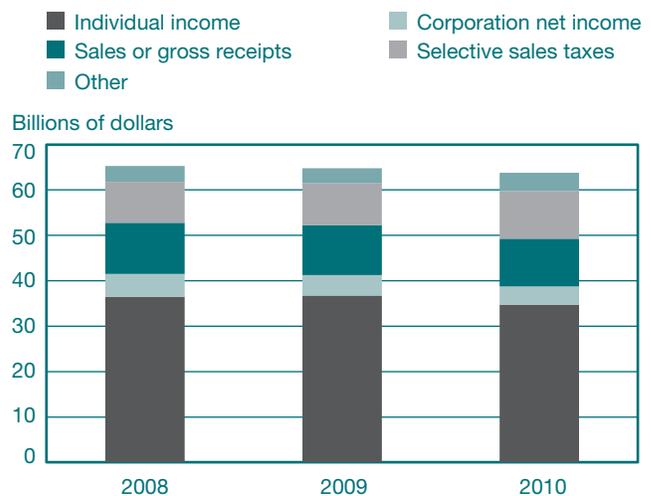
Adding to New Jersey's noticeably more difficult funding situation is a budgetary rule prohibiting the carryover of deficits across fiscal years. As a result of this rule, which is

⁴ We recognize that differences exist in smaller categories as well (education technology grants, for example), but because the amounts are so small, their impact is likely dwarfed by the larger categories. Thus, we focus on the top three.

⁵ New Jersey lost to Ohio by 3 points. The application error cost the state 4.8 points. Ohio received \$400 million in funding. For more information, see "Error on 'Race to the Top' Application Costs N.J. \$400M in Federal Funds," *The Star-Ledger*, August 24, 2010.

⁶ The disparity in Race to the Top awards for New York and New Jersey constitutes a rather large difference in funding between the two states, but it is not reflected in the figures we provide in this article. Since these funds were awarded in August 2010, they did not appear in the data until the 2010-11 school year.

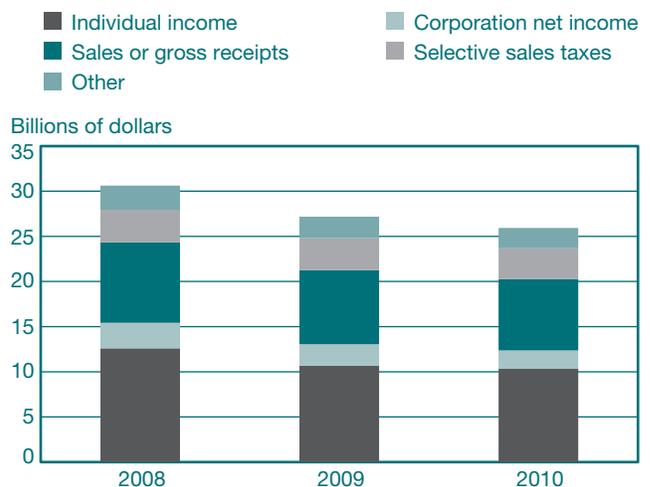
CHART 9
New York State Tax Revenue



Source: *Governing Magazine* data, <http://www.governing.com/gov-data/state-tax-revenue-data.html>.

Note: Selective sales taxes are those applied to a single commodity, such as tobacco, gasoline, or food.

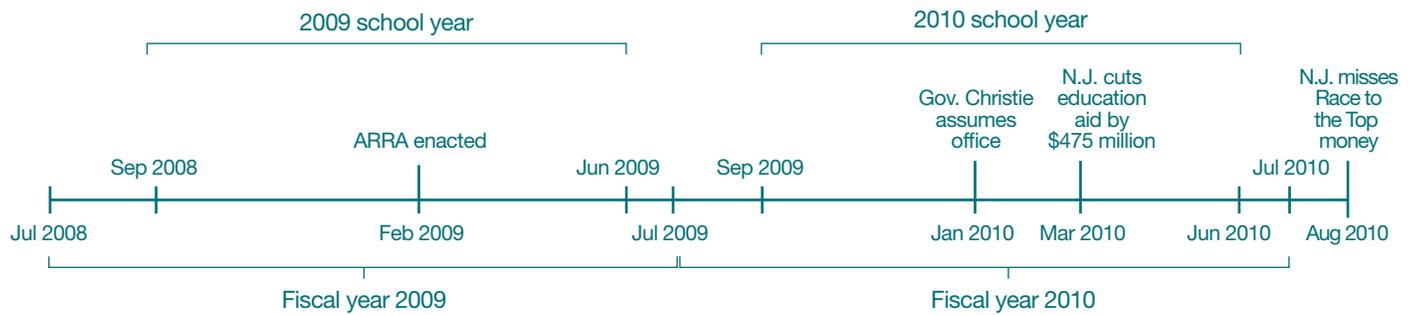
CHART 10
New Jersey State Tax Revenue



Source: *Governing Magazine* data, <http://www.governing.com/gov-data/state-tax-revenue-data.html>.

Note: Selective sales taxes are those applied to a single commodity, such as tobacco, gasoline, or food.

Timeline of Events



Note: ARRA is American Recovery and Reinvestment Act of 2009.

widely considered to be the most stringent among state budget requirements, aggressive action is often needed to close intra-fiscal-year deficits. States that have this requirement in place tend to rely more heavily on spending cuts to close intra-year budget gaps than states that do not, such as New York.⁷ Thus, New Jersey not only faced steeper revenue declines than New York but it was also left with few options outside of spending cuts to cover those declines. As a result, we would expect deviations from state funding trends to be sharper in New Jersey than in New York.

Looking at the actual budgetary actions over this period, we see evidence of this discrepancy. New York's and New Jersey's fiscal years begin on April 1 and July 1, respectively. Fiscal years (FY) are named for the year in which they end, so New Jersey's FY 2010 began on July 1, 2009, and ended on June 30, 2010. Chris Christie was elected governor at the end of 2009 and came into office in January 2010, midway through the FY 2010 budget, which had been set by his predecessor, Jon Corzine. The state had dealt with that year's budget gap largely by reducing operating costs (such as by freezing pay and forcing furloughs), temporarily raising income taxes, paring back property tax rebates, applying for federal aid, and boosting revenue collection through a tax amnesty program. Governor Christie, tasked with closing an emerging gap in the 2010 budget *before the fiscal year's end*, cut \$475 million in state aid to schools in January 2010.⁸ See Exhibit 2 above for a timeline of events. This sharp decline in state aid, clearly reflected in Chart 3, is likely a direct result of New Jersey's limited funding and tough budget laws.

⁷ See Deitz, Haughwout, and Steindel (2010).

⁸ Robert Gebeloff and Winnie Hu, "Details Given on Cuts by Christie to Schools," *The New York Times*, March 17, 2010.

4.3 Summary

Over the 2008-10 period, New Jersey saw a decline in total funding per pupil, while total funding per pupil in New York increased. This difference was largely driven by the sharp cuts to state aid in New Jersey and stark differences in federal aid. We can account for these differences through student demographics and New Jersey's budget laws.

New Jersey faced declines in state revenues and strict budget laws that simply made the state's overall funding situation difficult in comparison to New York's. As a result, New Jersey had to make cuts to deal with its funding issues, and education was hit with a big portion of those cuts.

5. CONCLUSION

How did school financing in New York and New Jersey fare following the onset of the Great Recession and the ensuing federal stimulus? In this article, the first to compare the impact of the recession and stimulus on school finance across states, we contrast key findings from our earlier research on New York and New Jersey. In doing so, we reveal some stark differences in school district finances between the two states. On the funding side, New Jersey districts experienced a much sharper decline in total funding per pupil than did New York districts. New York districts received a much larger boost (relative to trend) from the stimulus than New Jersey districts did. While both states experienced a negative shift in state aid over the two years after the recession, New Jersey's decline was markedly steeper. Local funding fell by a greater amount in New York, but the difference pales in comparison to the federal and state aid discrepancies.

Examining the differences in how districts in the two states changed the composition of their expenditures, we find that New Jersey districts cut instruction a great deal more than their New York counterparts, while New York districts made greater cuts in transportation, student activities, and utilities.

To help explain the funding differences, we explore the factors that drive each of the main sources of aid. Demographic differences (including the total number of students, the number of economically disadvantaged students, and the number of special education students) are cited as a key

reason New York received a significantly larger amount of federal aid than New Jersey, while New Jersey's large state aid cuts were primarily driven by budget laws and steep declines in tax revenue. The analysis in this article demonstrates how a recession's impact can turn on a few key demographics, as New York and New Jersey, two states with a great deal in common, had very different experiences. Perhaps more importantly, our analysis yields a better understanding of the roles that state budget laws and large funding injections can play in shaping the effects of recessions on school finances.

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