**SYRACUSE UNIVERSITY**
**MAXWELL SCHOOL OF CITIZENSHIP AND PUBLIC AFFAIRS**

PAI 735/ECN635
State and Local Government Finance
Professor Yinger

# CASE:
# REVISING NEW YORK STATE'S SCHOOL TAX RELIEF PROGRAM[1]

Local property taxes in New York State are among the highest in the nation. This heavy reliance on the property tax combined with a wide range in wealth per pupil across school districts is a major source of existing disparities in educational funding. It is not surprising, therefore, that many policy makers in New York have focused on property tax relief, not only as a way to gain political favor for cutting taxes but also as a way to add balance to the state's revenue system and to reform educational finance in the state.

The largest property tax relief program in New York State is the School Tax Relief program, STAR. This program was passed in 1997, fully implemented in 2001, expanded in 2007, changed back to its original form in 2010, and then altered again in more recent years. It applies to school property taxes, which make up the largest portion of the property taxes in the state by far. STAR is a popular program and there is little support in the legislature for repealing or replacing it. However, the New York State Assembly has decided to consider revising STAR once more and is holding hearings to consider possible revisions.

## Description of STAR

In five large cities in New York (Buffalo, New York, Rochester, Syracuse, and Yonkers), the school district is a department of the city government and property taxes are part of the city tax levy. Everywhere else in the state, school property taxes are levied by independent school districts. A homeowner's local school property tax payment equals the tax rate selected by her school district multiplied by the assessed value of her home, which is required to be set as near as possible to its market value. The main feature of STAR is a property tax exemption, say $X$, that is subtracted from assessed value, so that the tax payment becomes the rate multiplied by the amount of assessed value above the exemption. In symbols, the property tax payment, $T$, used to equal the tax rate, $t$, multiplied by the assessed value, $V$, or $T = tV$. With the STAR exemption in

[1] This case was written by Professor John Yinger solely for the purposes of class discussion. It is a revision of an earlier case on the same subject. Some details of New York's property tax relief programs have been simplified or altered to facilitate discussion, so this case should not be used as a reference for the features of these programs. The organizations in this case are figments of the author's imagination. In contrast, the citations of academic research are real.

place, however, this formula becomes $T = t\ (V - X)$.

The STAR exemption equals a base amount of $30,000 for the owners of owner-occupied one- to three-family houses, mobile homes, condominiums, and cooperative apartments or $50,000 (called an enhanced exemption) if the owner is aged 65 or older with an income below $60,000.[2] School districts must provide this exemption and the State reimburses them for its cost. Consider a house worth $100,000 in a school district with a 1.5 percent property tax rate. Without STAR, the owner of this house would pay a property tax of (.015)×($100,000) = $1,500, but with STAR, this owner's tax drops to (.015)×($100,000 - $30,000) = $1,050, a tax reduction of $450, or 30 percent. In this example, the state pays $450 to the school district so that the exemption does not lead to a drop in school revenue.

One of the key features of the STAR exemptions is that the base amount is multiplied by a "Sales Price Differential Factor," SPDF, which is the ratio of the three-year average sales price of residential property in a district's county relative to the three-year average in the state as a whole. This factor cannot fall below 1.0. Thus, this provision greatly increases the amount of the exemption in counties with relatively high property values. The STAR exemptions also are multiplied by an "Equalization Factor," which accounts for the fact that not all assessing districts assess property at 100 percent of market value. With this factor in place, it is appropriate to compare effective tax rates across districts.

## The Distributional Effects of STAR

STAR raises many issues of concern to voters and public officials. Some of the most important concerns involve equity across taxpayers and school districts. For example, a property tax exemption promotes equity across taxpayers within a district by lowering the tax burden more (in percentage terms) on taxpayers with smaller property values, and thus with the least ability to pay. However, the SPDF offsets this equity improvement by giving a larger tax break to taxpayers in higher-wealth counties. The impact of the SPDF on STAR exemptions is shown in Figure 1. The exemption is $30,000 in most upstate school districts, but it exceeds $30,000 in all of the downstate districts, and is currently set at about $95,000 in Westchester County.

Another source of inequity is the fact that STAR does not provide any tax relief for renters. As a result, the amount of implicit aid per pupil is much lower in school districts in which renters make up a large share of households. As shown in Table 1, for example, the value of STAR exemptions in 2011-12 was only $591 per pupil in the upstate big cities compared to $2,090 in small cities downstate and $1,856 in downstate suburbs.[3]

One way to address this equity would be through an income tax rebate for renters, set perhaps as a percentage of their rent multiplied by the local property tax rate. This would be consistent with the approach taken by the STAR income tax rebate for owners, which was in place from 2007 to 2009 (and which is discussed below). Another possible approach would be to

[2] Starting in 2011-12, homeowners with family incomes above $500,000 are no longer eligible for STAR exemptions. This provision obviously affects only a small fraction of homeowners.

[3] The provisions of STAR are different for New York City, so it is omitted from the tables in this case.

extend STAR to the owners of rental property. To the extent that landlords live in the school district where their properties are located, this approach would increase state reimbursement to high-renter districts. In addition, it would probably would help renters eventually as the tax relief for landlords made its way into rents. After all, if property taxes are shifted onto tenants in the form of higher rents, lower property taxes on rental housing should lead to lower rents.

The problem, of course, is that either of these approaches would either greatly increase the cost of STAR or else result in much lower exemptions for homeowners. An increase in costs would almost certainly result in less state aid for education, which is more effectively focused on needy school districts than is STAR—even a revised STAR that includes renters. Even so, the New York Tenant Network has actively lobbied for an extension of STAR to renters.

**How STAR Affects Voters' Tax Prices and School District Spending**

Another feature of STAR is equally important but more difficult to understand, namely the fact that it alters the "tax price" faced by voters. The tax price is the voters' share of any increase in property taxes to pay for schools. This tax price varies widely across school districts, largely because some districts have far more commercial and industrial property than others. The tax price is lower in a district with a great deal of commercial and industrial property because much of the burden of any school tax increase falls on commercial and industrial taxpayers, not on homeowners and other voters. In effect, the tax price operates like any other price; the higher the price, the more consumers substitute away from a product toward other products. Just as consumers buy less coffee if the price of coffee is higher, they will vote for less spending on schools if the tax price is higher.

This tax-price effect is not just hypothetical. Many academic studies have shown that spending (for schools and for other local public services) is higher if the tax price is lower, all else equal. Apparently, the impact of commercial and industrial property and other factors on the tax price is salient enough to voters that they account for it in their voting on school budgets and in school board elections. Voters know, for example, that their property tax rates would go up if a large factory in their school district went out of business.

These results are usually expressed as an elasticity, which indicates the percentage change in spending for a one percent change in tax price. Most studies estimate that the price elasticity of demand for education is in the -0.2 to -0.6 range. Recent studies find a price elasticity of -0.19 in New York State and of -0.52 in Massachusetts.[4] Both estimates are statistically significant. With an elasticity of -0.5, a one percent increase in the tax price results in a -0.5 percent decline in the demand for school quality, as measured, say, by student test scores. A decline in school quality is accompanied, of course, by a decline in school spending.

Several of these studies also have found that this tax-price effect can work through state

[4] These studies are Tae Ho Eom, William D. Duncombe, Phuong Nguyen-Hoang, and John Yinger. "The Unintended Consequences of Property Tax Relief: New York State's STAR Program." *Education Finance and Policy* 9 (4) (Fall 2014): 446-480 and Phuong Nguyen-Hoang and John Yinger. "Education Finance Reform, Local Behavior, and Student Performance in Massachusetts." *Journal of Education Finance* 39 (4) (2014): 297-322.

aid programs.[5] In particular, a so-called matching program is designed so that the state pays a certain share of every dollar spent on education. If the matching rate is 33 percent, for example, then the state's share of every dollar of spending approved by local voters is $0.33 and the voters themselves have to pay only $0.67. In effect, therefore, the local tax price associated with matching aid equals one minus the matching rate. According to these studies, the higher the matching rate, and hence the lower the local tax price, the higher local spending on education. As it turns out, the STAR exemptions work exactly like a state matching grant for education.

The easiest way to derive an expression for a tax price is to combine a single voter's budget constraint with the budget constraint for a school district. A simple version of this process begins by defining non-housing commodities, $Z$, which sell for a price of $P_Z$ per unit and housing, $H$, which sells for a price of $P_H$ per square foot.[6] A voter sets her income, $Y$, equal to her spending on non-housing commodities, $P_Z Z$, plus her spending on housing, $P_H H$, plus her property tax payment, $tV$ [or $t\,(V - X)$ with STAR in place]. A district's tax base is the sum of property values across households and can be summarized by property value per pupil, $V^*$. A district must set spending per pupil, $E$, equal to total property tax revenue per pupil, $tV^*$, plus state aid per pupil, $A$. With STAR in place, the district must provide exemptions equal to $tX^*$, where $X^*$ is the total value of exemptions in the district per pupil, but the state compensates the district for these payments. In equation form:

| | Without STAR | With STAR |
|---|---|---|
| Individual Budget Constraint | $Y = P_Z Z + P_H H + tV$ | $Y = P_Z Z + P_H H + t\,(V - X)$ |
| District Budget Constraint | $E = tV^* + A$ | $E = t(V^* - X) + A + tX^* = tV^* + A$ |

Now a little simple algebra leads to the tax price. With or without STAR, solving the district budget constraint for $t$ yields $t = (E - A)/V^*$. Substituting this expression for $t$ into the individual budget constraint yields the following combined budget constraint:

| | Without STAR | With STAR |
|---|---|---|
| Combined Budget Constraint | $Y = P_Z Z + P_H H + [V/V^*](E-A)$ | $Y = P_Z Z + P_H H + [(V-X)/V^*](E-A)$ |

[5] These studies are reviewed in Ronald C. Fisher and Leslie E. Papke. "Local Government Responses to Education Grants." *National Tax Journal* 53 (March 2000), pp. 153-168.

[6] This version of the problem leaves out some items that are not essential for the derivation of a tax price, such as household borrowing, school district revenues other than property taxes, and state matching aid.

In these combined budget constraints, income is spent on three things, non-housing, $Z$, housing, $H$, and school spending per pupil above state aid, $(E - A)$. In each case the amount consumed is multiplied by a "price." Without STAR, the amount a voter must pay for each dollar of school spending per pupil above state aid is the value of the voter's house divided by property value per pupil in the district, $[V/V^*]$; in other words, $[V/V^*]$ is the voter's tax price. Once STAR is added, the tax price drops to $[(V - X)/V^*]$.

For example, consider a district in which every house has an assessed value of $100,000 and is the home to a single student. Then without STAR, the tax price is 100,000/100,000 = 1 for every voter; when all houses are alike, each voter must pay $1 to raise spending by $1 per pupil. Adding STAR, with its $30,000 exemption, cuts the tax price in this district to (100,000-30,000)/100,000 = 0.7, which is equivalent to a 30 percent price cut.

In a less homogeneous district, voters who have a relatively expensive house will have a relatively high tax price. If the average house in a district is worth $100,000 then the owner of a house worth $200,000 faces a tax price of 200,000/100,000 = 2.0 (again assuming, for the purposes of illustration only, one pupil per household). Intuitively, any increase in the tax rate to increase spending per pupil will have twice the impact on the owner of a $200,000 house than on the owner of a $100,000 house. Moreover, STAR will have a bigger effect on the tax price of a voter with a lower-valued house (ignoring the SPDF). When STAR is implemented, the owner of the $200,000 house will see her tax price drop from 2.0 to (200,000 - 30,000)/100,000 = 1.7, which is a 15 percent drop.

Because not all voters have the same tax price (or the same change in tax price from STAR), one cannot predict the amount of spending selected by a school district (or the change in its spending in response to STAR) without selecting a "decisive voter," defined as the voter whose demand for spending coincides with the spending level selected by the majority of voters. The most common approach, which works well in many circumstances, is to say that the decisive voter is the one with the median house value in the community, $V_M$. With this approach, a district's tax price is $V_M / V^*$ without STAR and $(V_M - X)/V^*$ with STAR, and the difference between these two tax prices can be used to predict how much the district's educational spending will increase when STAR is implemented. The percentage change in tax price will, of course, also be influenced by the amount of commercial and industrial property in the district and the number of pupils per household, both of which affect $V^*$.

When Governor Pataki and the New York State Legislature passed STAR, they did not recognize that the design of the program altered voter's incentives in such a direct way. This impact on incentives could have been avoided. The key problem is that the total value of the STAR payments to a district from the state depends on the tax rate the district selects. An alternative design that would not have this problem would be to calculate STAR reimbursements using the pre-STAR tax rate selected by the district. Suppose this pre-STAR tax rate is $t'$. Then the reimbursement from the state would equal $t'V^*$ instead of $tV^*$, and the district could no longer increase its reimbursement by increasing its tax rate. In this case, the district budget constraint can be written $E = t\,(V^* - X) + t'V^* + A$, and the tax price becomes $(V - X)/(V^* - X)$. With this new formulation, $X$ obviously no longer affects the tax price in a homogeneous community and has a substantially smaller impact on the tax price than does the current approach even when $V$ differs from $V^*$.

A similar approach would be to base a district's STAR reimbursement on the average tax rate in the state instead of on the district's own pre-STAR tax rate. This alternative would have the advantage of making sure that the STAR exemption was not higher in districts that selected a higher property tax rate. As a result, this alternative would promote horizontal equity (when all districts with given wealth would be treated equally). It also would promote vertical equity (when districts with lower wealth receive a larger subsidy) because wealthier districts tend to have higher tax rates (see Table 2).

These alternative designs have never been seriously considered.

## STAR Rebates

For three years starting in 2007, the STAR exemptions were supplemented by rebates. This addition was introduced by Governor Pataki and extended by Elliott Spitzer, who was elected governor in 2006. These rebates followed exactly the same algebra as the STAR exemptions. To be specific, the rebate was set at 30 percent of the STAR exemption in 2007 and a varying percentage of this exemption, depending on income, in 2008 and 2009. Let $d$ be the rebate percentage. Then the STAR component of tax price with rebates is $[(V - X - dX)/V^*]$. These rebates were eliminated when the recession hit in 2010.[7]

One might think that this decrease in the STAR tax price would lead to an increase in school district spending. A recent academic study finds that this is not the case.[8] The rebate is delivered as a check in the mail, not as an entry on property tax bill. As a result, voters apparently do not connect the rebate with school spending and receiving a rebate does not alter their decisions in school budget votes. This result is an example of the behavioral economics concept of "framing." Because the rebate is framed as unlabeled income, not as a reduced property tax payment, it does not alter voter's decisions about the school budget.

Switching from an exemption to a rebate can therefore be seen as an alternative method for minimizing behavioral responses to property tax relief. In other words, it appears that voters' behavioral responses to the price incentives created by a standard property tax exemption program can be reduced or even eliminated either by using a fixed tax rate in the formula or by delivering the tax relief through a rebate instead of a reduction in a household's property tax payment. However, simply switching to a rebate would not address any of the other issues raised by the STAR exemptions.

## The Predicted Impacts STAR

Perhaps the most basic theorem in economics is that people substitute toward goods and services when their price goes down. Because STAR causes such large declines in tax prices, some scholars predicted that it would result in a large increase in educational spending. In the

[7] Rebates are now used for homeowners applying for a STAR exemption for the first time. This provision is not considered for the purpose of this case discussion.

[8] Phuong Nguyen-Hoang and John Yinger. "How Salience and Framing Alter the Behavioral Impacts of Property Tax Relief." Working Paper, Syracuse University, May 2019.

average school district in New York, STAR initially lowered the tax price by 37 percent. A price cut of this magnitude could induce voters to want to spend considerably more on education. In an article published in 1998, two scholars from the Maxwell School at Syracuse University used a price elasticity of -0.45 to predict the impact of STAR.[9] With this elasticity, a 37 percent cut in tax price would result in a (0.37)×(0.45) = 16.65 percent increase in spending per pupil in the average district. To fund a spending increase of this magnitude, the local property tax rate would have to increase by over one-third in the average district. In an article published later the same year, the same authors estimated a price elasticity for New York State based on variation in tax prices before STAR of –0.3133.[10] With this elasticity, the expected increase in spending from STAR becomes (0.37)×(0.3133) = 11.6 percent.

These predictions raised three important issues for state policy. First, they implied that STAR would cause different changes in school spending in different types of district. As a result, STAR might increase the disparities in spending between city and suburban school districts.

Second, these predictions implied that STAR would result in a large increase in local property taxes on commercial and industrial property. This type of property does not receive a STAR exemption, but it is affected by any increase in the school property tax rate. As noted earlier, New York State is already perceived as a high-tax state, and many business leaders and public official argue that the high property taxes in the state are a serious deterrent to attracting new business. According to this widely held view, a large increase in property tax rates in the average school district would be devastating for the State's economic development prospects. Indeed, the Manufacturing Association of New York recently posted a plea for elected officials to eliminate the incentives in STAR that lead to higher property taxes on business property.

Third, these predictions implied that the official estimates of the cost of STAR, which assume no local spending increases, were far too low. STAR obligates the State to pay each district an amount per pupil equal to $tX^*$, where, as defined earlier, $t$ is the districts property tax rate and $X^*$ is the total value of its STAR exemptions per pupil. If $t$ goes up, so does the cost to the state. If the local property tax rate increased by one-third in the average district, then the overall cost of STAR to the State would also increase by one-third. Because STAR is part of New York State's education finance system, the predictions imply that this system is likely to rely more heavily on STAR (and perhaps less heavily on state aid) than elected officials expected.

## The Actual Impacts of STAR

An economist at Columbia University, Jonah Rockoff, was the first to publish an analysis of the actual impacts of STAR.[11] This study looked at STAR's initial impacts. Rockoff

---

[9] William D. Duncombe, and John Yinger. "An Analysis of Two Educational Policies in New York State: Performance Standards and Property Tax Relief." In *Educational Finance to Support Higher Learning Standards*, edited by J. H. Wyckoff (Albany: New York State Board of Regents, 1998), pp. 98- 137.

[10] William D. Duncombe, and John Yinger. **"**School Finance Reform: Aid Formulas and Equity Objectives," *National Tax Journal* 51 (June 1998), pp. 239-262.

[11] Jonah E. Rockoff, "Local Response to Fiscal Incentives in Heterogeneous Communities." *Journal of*

concluded that his analysis suggests that NYSTAR had important impacts on school expenditure and taxation. A typical school district, which received 20% of its revenue through NYSTAR in the school year 2001–2002, raised operational expenditure by 4.1% and local property taxes by 6.8% in response to fiscal incentives. This implies substantial crowd-out of tax relief for households owning relatively expensive homes and a considerable increase in taxes for owners of non-residential property, second homes, or rental property.

Although this is a high-quality study in a good professional journal, it looks only at the initial impacts of STAR and does not attempt to determine STAR's impacts on student performance or on school district efficiency. The increases in spending in this study could reflect an increase in school spending that leads to higher student performance or they could reflect an increase in wasteful spending by school districts.

Another academic study attempts to address these two limitations by examining data through 2011-12 and by estimating separate impacts on student performance and on school district efficiency..[12] School district efficiency cannot be directly observed, so this study accounts for school district inefficiency by controlling for factors that are thought to influence school administrators' incentives to act efficiently or voters' incentives to monitor school officials' behavior. For example, voters facing a high tax price might be more eager to make certain that their tax money was well spent.

The price elasticity estimated by this study for the STAR component of tax price is -0.57. As shown in Table 3, the associated longer-term impacts of STAR are similar to those estimated by Rockoff. The impacts of STAR on spending and tax rates are 4.3 and 13.9 percent, respectively, in the average district. Moreover, the increase in school spending reflects both an improvement in student performance (2.9 percent) and a decline in school district efficiency (2.6 percent). The spending effects are fairly similar across district types, but the impacts on property tax rates are much larger in the upstate Big Three (Buffalo, Rochester, and Syracuse) and in upstate rural districts than elsewhere. Indeed, the tax-rate effects in the upstate Big Three offset 77.4 percent of the initial tax savings from the STAR exemptions.

The New York State Tax Policy Institute, a non-partisan, non-profit institution, recently released a policy brief arguing that the behavioral impacts of STAR should be taken seriously.

## Tax Limitations

Elected officials in New York State have also discussed the possibility of imposing a limitation on school spending. Moreover, this policy has been actively pushed by the New Yorker Taxpayer Network. One possibility, for example, is to limit the increase in the property tax levy to 2 percent per year..[13] This limit would have an adjustment for new property so as not

---

*Urban Economics* 68 (2010), pp. 138–147.

[12] Eom et al., 2014, op. cit.

[13] New York State actually did impose a levy limit on all local governments, including school districts, starting in 2011. This limit should be ignored for the purposes of this case discussion.

to discourage economic development. It would also have an override provision. That is, it would allow a district to increase its levy by more than 2 percent if a super-majority (60 percent) of voters agreed. A limit of this type would have the advantage of preventing large increases in spending in response to the STAR incentives—or to any other factor.

A disadvantage of this approach is that it would constrain poor districts much more than it would constrain wealthy districts. In 2017, for example, 17 rich school districts had property tax revenue per pupil above $50,000, whereas 15 poor districts had property tax revenue per pupil below $3,000. A 2 percent limit allows these rich districts to raise revenue by at least $1,000 per year or $17,293 over 15 years. The comparable figures for these poor districts are $60 (at most) and $1,038. One of these poor districts has to wait at least 15 years to realize the same revenue increase per pupil as these rich districts obtain in a single year.

## The Case for Leaving STAR Alone

Some people continue to defend STAR. They argue that estimated price elasticities are simply irrelevant for STAR, which is, they say, nothing more than tax relief. Voters may spend more on education, they concede, when there is a lot of commercial and industrial property in a district to share the tax burden, but voters will never make the connection between their property tax exemptions and the "price" of education. STAR is a popular way to deliver tax relief, they conclude, and should not be altered. And even if STAR does stimulate school spending, they say, how can this be a bad thing?

Supporters of STAR, including Westchester Homeowners for Fair Taxation, also say that the SPDF does not raise any equity concerns. As former Governor Pataki put it when he proposed STAR, this provision simply recognizes that the cost of living is higher in some counties than in others.

Not surprisingly, the Upstate Homeowners' Association disagrees. Mr. Pataki did not explain why the other state taxes, including the income tax, are not expected to account for the cost of living or why it is the State's responsibility to compensate people who decide to move into a high-cost location. After all, people have a choice about where to live, and firms that want to attract people to a higher-cost location may already have to pay them higher wages.

Finally, STAR supporters continue to defend the exclusion of renters. Some supporters argue that it is appropriate to limit property tax breaks to households who have made a commitment to a community by buying a house there. Furthermore, the implications of the renter exclusion for state reimbursement per pupil are irrelevant, they say, because this is a property tax relief program, not a form of state aid. Others point out that the owners of rental property, not the renters themselves, pay property taxes on rental housing. Renters might pay some of the property tax in the form of higher rents, these STAR supporters concede, but the amount of the tax that is shifted to renters in this manner is unknown and may be small.

## The Hearings

Leaders of the New York State Assembly have decided that it is time to re-evaluate STAR and have scheduled hearings for this purpose. They recognize that STAR is popular, particularly in the wealthy suburbs around New York City, but they are willing to consider

revisions to the STAR legislation.

You have been invited to testify at a STAR hearing before a committee of the New York Assembly. To be specific, you have been asked by this committee to give a presentation concerning your views on the strengths and weaknesses of STAR and to either defend the current version of STAR or to suggest revisions. Your presentation should exclude New York City; its unique STAR provisions will be considered in a separate hearing.

This hearing will not consider eliminating STAR altogether, although that subject may be on the agenda for future hearings, depending on how serious the problems with STAR appear to be. The committee has not limited your presentation to any particular features or impacts of STAR; instead, it wants to hear your views about STAR and about the features of STAR that need to be reformed, if any. The issues they have identified for you to consider are the treatment of renters, the SPDF, the use of rebates instead of property tax exemptions, and the selection of the property tax rate for the tax exemption (or rebate) formula. Strictly speaking, a school property tax levy limit would not be part of STAR, but you have been told that you may consider a levy limit as a policy to accompany STAR if you wish. You need not address all of these issues, and you may raise other issues that are not on this list.

If you wish, you may also submit a short (two-page) memo to the committee presenting your views on the strengths and weaknesses of STAR and your recommendations for reform.

**Figure 1. STAR Exemptions in Various Counties, Including Rebates**

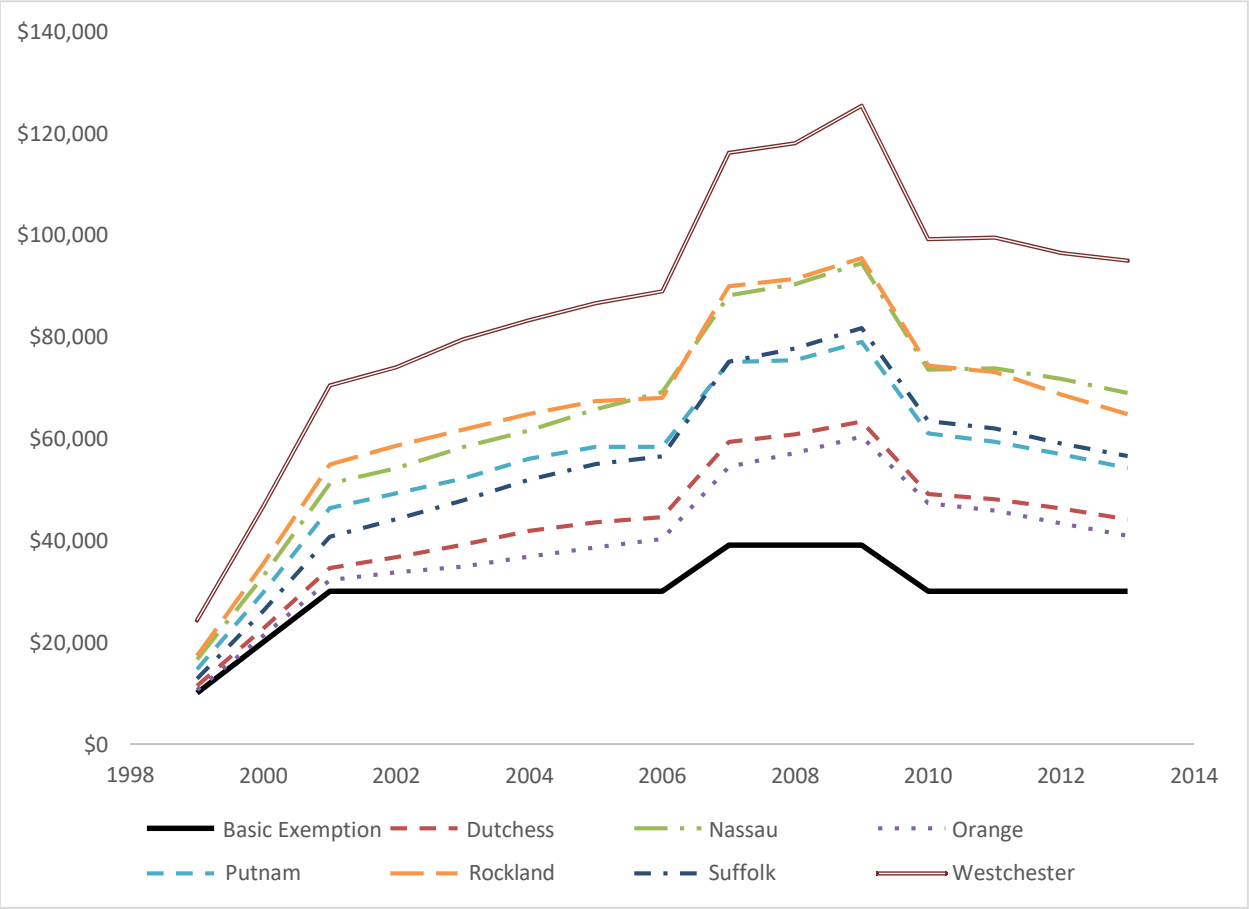

**Table 1. School District STAR Savings by NYSED Regions**

| | STAR savings per pupil ($) | | | STAR savings as % of state aid | | | STAR savings as % of tot. operating spending | | |
|---|---|---|---|---|---|---|---|---|---|
| | **2002** | **2006** | **2011** | **2001** | **2006** | **2011** | **2002** | **2006** | **2011** |
| Downstate Small Cities | 1,498 | 2,061 | 2,090 | 39.7 | 50.1 | 49.2 | 10.7 | 11.3 | 9.7 |
| Downstate Suburbs | 1,316 | 1,669 | 1,856 | 37.6 | 41.8 | 39.5 | 9.9 | 9.9 | 8.9 |
| Big Four | 479 | 614 | 591 | 6.0 | 6.2 | 4.7 | 4.2 | 4.3 | 3.5 |
| Upstate Small Cities | 841 | 1,047 | 1,012 | 13.9 | 15.2 | 11.6 | 8.2 | 8.1 | 6.4 |
| Upstate Rural | 773 | 1,024 | 1,034 | 11.1 | 12.8 | 10.2 | 7.7 | 7.9 | 6.2 |
| Upstate Suburbs | 1,010 | 1,244 | 1,295 | 20.8 | 22.6 | 19.7 | 10.5 | 10.3 | 8.6 |

Note: This table presents savings from both basic and enhanced STAR exemptions. The big four are Buffalo, Rochester, Syracuse, and Yonkers. Source: Eom et al. (2014).

**Table 2. Tax Prices and Effective Property Tax Rates in 2011 by NYSED Region**

| **Region** | **Tax Price** | **STAR Tax Price** | **Effective Tax Rate** |
|---|---|---|---|
| Downstate small cities | 0.495 | 0.820 | 1.627 |
| Downstate suburbs | 0.460 | 0.856 | 1.592 |
| Yonkers | 0.641 | 0.841 | 1.259 |
| Big three | 0.434 | 0.729 | 1.540 |
| Upstate small cities | 0.371 | 0.710 | 1.930 |
| Upstate rural | 0.256 | 0.714 | 1.546 |
| Upstate suburbs | 0.327 | 0.765 | 1.856 |
| Average District | 0.344 | 0.769 | 1.700 |

Notes: Tax price is ($V/\bar{V}$); STAR tax price is ($1-X/V$); effective tax rate is equal to total property tax revenues divided by total equalized property value. Source: Eom et al. (2014)

**Table 3. Simulated Impacts of STAR on Spending, Efficiency, Performance, and Property Taxes, 2011**

| Region | E | e | C | S | t | Offset |
|---|---|---|---|---|---|---|
| Downstate Small Cities | 3.22% | -1.99% | 1.17% | 2.13% | 4.68% | 19.52% |
| Downstate Suburbs | 2.58% | -1.60% | 0.93% | 1.70% | 3.64% | 20.02% |
| Yonkers | 2.54% | -1.53% | 0.97% | 1.77% | 6.54% | 34.54% |
| Upstate Big Three | 4.55% | -2.68% | 1.74% | 3.19% | 29.74% | 77.42% |
| Upstate Rural | 5.42% | -3.21% | 2.01% | 3.68% | 22.15% | 44.83% |
| Upstate Small Cities | 5.37% | -3.18% | 2.00% | 3.67% | 19.33% | 39.95% |
| Upstate Suburbs | 4.29% | -2.58% | 1.58% | 2.90% | 11.69% | 32.35% |
| Statewide Mean | 4.34% | -2.61% | 1.60% | 2.94% | 13.85% | 34.29% |
| Median District | 3.82% | -2.32% | 1.41% | 2.58% | 7.93% | 28.05% |

Notes: E = expenditure per pupil; e = efficiency index; C = best practices spending; S = student performance index; t = effective property tax rate; Offset = share of original tax break ($tX$) offset by STAR-induced property tax rate increase. Source: Eom et al. (2014).