



RESIDENTIAL TAXES:

A NARROWING GAP BETWEEN PHILADELPHIA AND ITS SUBURBS

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Philadelphia
Research
Initiative

KEY FINDINGS

From 2000 to 2012, the residential tax burden fell in Philadelphia and rose in many suburbs, leaving the city more competitive on local taxes with its neighboring municipalities.

This is one of the key findings of a study of state and local tax burdens that set out to determine how much a hypothetical home-owning family paid in Philadelphia compared to the suburbs, and how the city-suburban tax gap has changed in recent years for both commuters and noncommuters.

Our study of 237 municipalities in Pennsylvania and New Jersey found that the tax disadvantage of living in Philadelphia vis-à-vis the suburbs declined markedly between 2000 and 2012 and disappeared in some cases. In 2000, compared to the taxes imposed on noncommuters in the various suburbs, Philadelphia imposed the region's third-highest tax burden on residents. In 2012, it had the 48th-heaviest burden. Driving the improvement in the city's relative position was the fact that the city lagged behind most of the suburbs in raising property assessments in line with market values over the 12 years. In addition, Philadelphia lowered its wage tax slightly, while many Pennsylvania suburbs raised their earned income taxes.

This year, the highest average tax burdens in the region were paid by individuals commuting from the Pennsylvania suburbs to jobs in Philadelphia. Purely from a tax-cost standpoint, those families would have saved money by living, as well as working, in the city instead of commuting from the suburbs. They would have saved even more money had they found comparable-paying jobs in most suburbs.

Our results are expressed in terms of the percentage of household income that a four-person, middle-income family would pay in taxes in each municipality. Three taxes were included: local taxes on property; local and state taxes on earned income or wages; and local and state sales taxes on consumer purchases. We set the family's total earnings at \$60,000 in 2012 and \$47,500 in 2000, which were roughly the regional medians for each year. In line with the regional averages, we assumed the market value of the family's home was 3.1 times its income in 2012, or \$186,000, and 2.3 times its income in 2000, or \$109,250. Then we created three scenarios for the family's home and work location: the family's home is in the suburbs and its adults work in Philadelphia where they pay the city's nonresident wage tax (suburban commuters); the family's home and jobs are both in the suburbs (suburban noncommuters); and the family's home is in Philadelphia and its adults work either in the city or suburbs (city residents).

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Specifically our study found:

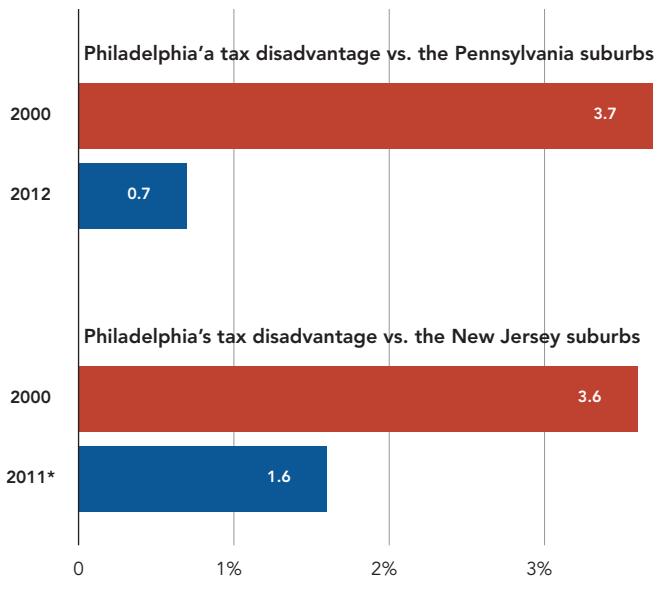
- In Philadelphia, the average residential tax burden declined between 2000 and 2012, from 10.7 percent of income to 9.8 percent. Factoring in state income taxes, the hypothetical family's total state-and-local tax burden fell from 13.5 percent to 12.9 percent. The main reasons for the decreased burden included property assessments that did not keep pace with rising market values and a reduction in the city's wage tax rates. The lower tax burden includes recent increases in the city's sales and property tax rates.
- In the Pennsylvania and New Jersey suburbs, according to our model, the average burden from state and local taxes rose significantly. For a middle-income family living and working in the Pennsylvania suburbs, it went from 9.8 percent in 2000 to 12.2 percent in 2012 due mostly to higher property and income taxes. For a New Jersey suburban family, the average tax burden rose from 9.9 percent to 11.3 percent in 2011 (the last year available), largely due to higher sales and property taxes.

FIGURE 1

THE NARROWING CITY-SUBURBAN TAX GAP

2000 AND 2011/2012

For noncommuters, the tax disadvantage of living in Philadelphia on the one hand versus the Pennsylvania and New Jersey suburbs on the other has decreased since 2000. The main causes were rising local income tax rates and property tax bills in the suburbs, falling income tax rates in Philadelphia, and lower property assessments relative to home values in Philadelphia during the period. The gap between the average tax burdens is shown in percentage points of income for a hypothetical family with the regional median household income.



*Last year available for New Jersey.

SOURCES: Municipal governments; Commonwealth of Pennsylvania; State of New Jersey; Philadelphia Research Initiative calculations.

- For noncommuters, the gap in tax burden has narrowed between Philadelphia and its neighboring towns in Pennsylvania and New Jersey. Suburbanites who did not work in the city—and thus did not pay Philadelphia's nonresident wage tax—still enjoyed a tax advantage on average over city residents. But it was a far smaller advantage than in 2000. In Pennsylvania, the gap dropped from 3.7 percentage points to 0.7 point in 2012. In New Jersey, it fell from 3.6 points to 1.6 point in 2011, the last year available. See Figure 1.
- For commuters who worked in Philadelphia in 2000, living in the Pennsylvania suburbs provided a slight tax advantage. But by 2012, that commuting arrangement had become a disadvantage in most cases. In 2012, on average, the tax burden for commuters from the Pennsylvania suburbs was 2.1 percentage points higher than it was for Philadelphians; it had been 0.3 point lower than the city tax burden in 2000.
- For commuters from New Jersey, the same phenomenon occurred, although the magnitude of the change was smaller. In 2011, the last year for which numbers were available, there was a 0.4-percentage-point disadvantage to commuting; in 2000, New Jersey commuters had enjoyed a 0.9-percentage-point advantage over Philadelphia residents in the overall tax burden.

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- In the Pennsylvania suburbs among both commuters and noncommuters, the heaviest tax burdens in 2012 tended to be in Delaware County blue-collar communities close to Philadelphia, led by Darby Borough, Yeadon Borough and Lansdowne Borough. The lowest tax burdens for median-income families were in higher-income communities such as Bucks County's Solebury Township, Montgomery County's Upper Merion Township and Chester County's Easttown Township.
- In New Jersey in 2011, the highest suburban tax burdens were in Camden County's Woodlynne Borough and Audubon Park Borough; the lowest were in Salem County's Lower Alloways Creek Township and Burlington County's Washington and New Hanover Townships.

Taken together, these figures show that Philadelphia's tax disadvantage relative to the suburbs has narrowed significantly and in some cases disappeared. Public finance experts and city officials long have cited this gap as a factor in the loss of residents and jobs. Key drivers of the change were higher local income and property taxes in some suburbs, falling wage taxes in Philadelphia, and undervalued property assessments in Philadelphia compared to suburbs, where assessments more closely reflected rising home values through most of the 12-year period.

Each municipality's tax burdens for 2000 and 2011/2012, and how they differ from Philadelphia's burden, can be viewed and compared to others in an interactive online map at www.pewtrusts.org/philarsearch.

Philadelphia's property tax system will change in 2013 if City Council and the mayor follow through with proposed reforms. The new system, which is intended to address inequities in assessments, would tax properties on their actual market values and is intended to help keep assessments up-to-date and consistent citywide. This study does not address those changes.

We caution that the tax burden on the hypothetical median-income family may not reflect the reality for many residents, especially on property taxes, which is the most complicated element to compare across and even within jurisdictions. It does not include a number of other taxes and fees in both the city and suburbs, ranging from trash collection charges to bridge tolls. Importantly, the analysis also does not reflect whether residents are getting their money's worth in municipal services, especially schools and public safety, a factor which often trumps local taxes as a factor in families' decisions about where to live.

In our research, we did not compare Philadelphia to other major cities. But our report does take note of the findings of the annual study done by the chief financial officer of Washington, D.C., which has consistently put Philadelphia near the top of the tax burden rankings.

INTRODUCTION

Local Taxes Matter

Local taxes help pay for schools, police protection, fire and emergency services, parks, and neighborhood amenities. If residents think they are getting the services that they want at a reasonable price, then the level of taxes is not an issue. But if the services cost more than residents think they are worth, or if the overall level of taxation looks high compared to other communities, then the taxes can become a reason for people to leave or not to come in the first place.

To shed light on local tax policies, Pew's Philadelphia Research Initiative measured the percentage of a household's annual income spent on certain state and local taxes in Philadelphia and 236 other municipalities in the region for the years 2000 and 2012. This household tax burden is calculated based on the three biggest nonfederal taxes—property and school taxes, earnings and wage taxes, and sales taxes.

The study is not meant to be an argument for or against any particular tax or level of taxation. It aims primarily to measure the gap in state and local tax burden between Philadelphia and the suburbs, and to see how it has changed since 2000. The analysis is based on a set of assumptions that are necessary to make such measurements possible.

It should be noted that this study does not analyze the level of local business taxes, which may affect residential as well as business location decisions. Nor does it discuss the impact of taxes on economic activity or municipal government budgets.

Study Assumptions

To calculate the tax burden, we adopted and modified a model created by Professor Robert P. Inman of the Wharton School of the University of Pennsylvania, with whom we have consulted in preparing this report. His model had been used to analyze municipal tax burdens in 1994, 1997 and most recently 2000 in a report published by the Economy League of Greater Philadelphia.¹ We based our property tax calculations on analyses by Professor Robert P. Strauss of Carnegie Mellon University and Kevin C. Gillen, a Philadelphia-based real estate economist. Data collection and basic tax burden calculations were done by Tess Mullen of the Fels Institute of Government's Research & Consulting practice at the University of Pennsylvania.

This study defines tax burden as a family's total state and local taxes on assessed property, consumer purchases and earned income, divided by its household income and expressed as a percentage of income. In order to focus on the comparative tax burden between one municipality and another, the model creates a hypothetical family in both 2011/2012 (the period covered by our report) and 2000 (the period covered in the Economy League report). We assume that this family could live in any municipality, even though in reality it might not be able to find an affordable home or appealing neighborhood in each place.

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A full explanation of the assumptions can be found in the Methodological Appendix. Here is a summary:

- The hypothetical family consists of two adults under age 65 with two dependent children; the adults are married and file state and local taxes jointly. We gave them the major exemptions and tax credits allowed in each state. We did not take into account how deducting local tax payments would affect their federal tax burden.
- The family gets its income entirely from salary, wages and earnings and has no investment or interest income; this was done to keep the calculations as simple as possible and because investment income is generally small for middle-income families. We based the family's income on the Philadelphia regional median household income as determined by the Census Bureau. The median for 2010, the last year available, was \$60,037, which we rounded to \$60,000; the 2000 median income not adjusted for inflation was \$47,536, which we rounded to \$47,500.²
- We set the market value of the family's home at 3.1 times its household income in 2012, or \$186,000, and 2.3 times its income in 2000, or \$109,250 unadjusted for inflation. These are the actual regional income-to-home price multipliers for each year according to data from the Census Bureau and economist Gillen. They reflect fluctuations in home values on which property assessments often are based.³ We assumed the family did not qualify for Philadelphia's 10-year property tax abatement for new construction or major renovations. We did not make separate calculations for renters, although property taxes are figured into rents.
- We assumed that each municipality, except Philadelphia, assessed the family's home at the assessment-to-market ratio as determined by the New Jersey Treasury Department or the Pennsylvania State Tax Equalization Board. For Philadelphia, a variety of tax experts, including current and former state board members, expressed concerns about the city's data underlying the state's assessment ratio. So instead of using the state's ratios, which were 28.7 percent in 2000 and 25.2 percent in 2011 (the last year available), we asked Strauss and Gillen to use original city records and calculate the average assessment-to-market ratios for Philadelphia. Their separate findings were consistent with one another at about 22 percent for 2000 and 13 percent for 2012, which are the figures we used in our calculations.⁴
- We assumed the family spends 30 percent of its income on sales-taxable purchases, a figure based on actual Pennsylvania tax collections. If family members live and work in the suburbs, we stipulated that all their purchases are made in the suburbs and are subject to the sales tax rate there. If they commute to the city to work, we assumed a quarter of their purchases are subject to the city's higher sales tax. If they live in Philadelphia, we put half of their purchases in the city and half in the Pennsylvania suburbs.⁵
- If the family resides in the suburbs and its adults commute to the city, we assumed they pay Philadelphia's nonresident wage tax rate but not any suburban earnings tax, from which they would be exempt by law. If they reside in New Jersey and work in Philadelphia, they deduct the nonresident city wage tax from their New Jersey state income taxes—which has the effect of eliminating the state income tax for a family in that tax bracket—and do not pay Pennsylvania income tax under a reciprocal agreement between the states.

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- Our calculations do not include any other local taxes or fees, such as the Philadelphia School Income Tax and other taxes on unearned income, trash collection fees, fire department taxes, utility surcharges, or many others that vary from place to place; these taxes tend to be small compared to those on sales, property and earned income. And our calculations do not take into account nongovernmental costs that also vary substantially, such as housing prices, homeowner's and automobile insurance, and costs related to commuting.
- The region, for this study, consists of Philadelphia; 30 of the most populous Pennsylvania municipalities in each of Bucks, Chester, Delaware and Montgomery Counties; and all 116 New Jersey municipalities in Burlington, Camden, Gloucester and Salem Counties. The study excludes about 120 other Pennsylvania suburbs, most of them relatively small, and all towns in northern Delaware.

We emphasize that our study only measures certain scenarios for a hypothetical family living and working under these assumptions; it does not measure the actual taxes paid by real families. To make this study manageable, we did not consider suburban family scenarios with one commuter and one noncommuter. In particular, our hypothetical family's property taxes may vary substantially from those of a real family. Property taxes are the murkiest and most controversial of local taxes, with assessments varying widely from county to county, and even house to house, particularly within Philadelphia, as documented by many news and city reports.⁶ These problems are the focus of reform proposals by the City Council and the administration of Mayor Michael Nutter. Our study does not address those proposals or estimate their impact on taxpayers. It does show that the city's declining ratio of assessed to market values, while evidence of flaws in the city's property tax system, has helped lower Philadelphia's overall tax burden compared to the suburbs.

REGIONAL TAX BURDENS 2000-2012

Philadelphia

In 2012, our hypothetical median-income family in Philadelphia living in a home worth a little more than three times its annual income paid 9.8 percent of its income to property, sales, and local wage taxes. That was down from 10.7 percent in 2000. Factoring in the state income tax, which rose from 2.8 percent to 3.07 percent during the decade, the family's total state-and-local tax burden in Philadelphia was 12.9 percent, compared with 13.5 percent in 2000. See Figure 2.

In dollars, Philadelphia's local tax burden on this family amounted to \$5,897 in 2012, down from an inflation-adjusted \$6,811 on a similar family in 2000. Including state income taxes, the family's state-and-local tax bill came to \$7,739, down from inflation-adjusted \$8,586.⁷

During the period studied, there were significant changes in all three tax elements—property, income and sales.

Philadelphia's property tax system was a driving factor behind our family's smaller tax burden over the last 12 years. We and others have found that the city did not keep property assessments in line with sharply rising and then declining home prices. This resulted in a lower effective property tax rate. Twelve years ago, Philadelphia's effective property tax rate was about 24 percent lower than in the suburbs. In 2012, it was 46 percent lower.⁸

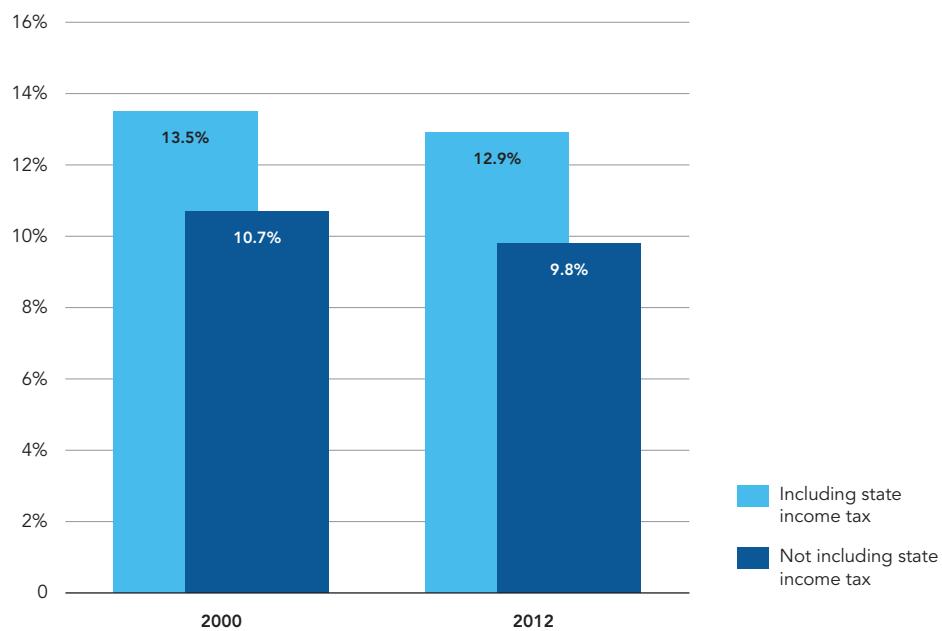
A Narrowing Gap between Philadelphia and its Suburbs

FIGURE 2

PHILADELPHIA TAX BURDEN

2000 AND 2012

This chart shows the share of household income paid in income, property and sales taxes for our hypothetical family living in Philadelphia. The drop in the family's tax burden from 2000 to 2012 was driven mostly by the city not revising its property assessments to keep up with changing market values—and by falling wage tax rates through most of the period. These factors were partially offset by hikes in property and sales tax rates at the end of the period.



SOURCES: City of Philadelphia, Philadelphia Research Initiative analysis.

In an earlier analysis, economist Gillen found that Philadelphia has tended to undervalue properties and that the longstanding inaccuracy of its assessments worsened significantly from 2003 to 2007. This was due mainly to the city's failure to keep up with fast-changing sale prices.⁹ Figures from the State Tax Equalization Board also show that the city did not keep pace with rising sale prices over the period of our study, reflected in a much lower ratio of assessed to market values by 2012.¹⁰ In addition, preliminary results of an analysis commissioned by City Council in April 2012 indicated that real assessment ratios were less than half of the official published ratio of 32 percent.¹¹

This decline in assessed values relative to market values pushed down the city's effective property tax rate, even though the nominal tax rate rose slightly over the last few years. In 2010, in response to a recession-driven budget crisis, Philadelphia leaders approved a two-step hike in the nominal rate to 9.082 percent of assessed value in January 2011 and then 9.432 percent in January 2012. That 9.432 percent rate was 1.168 percentage points, or 14 percent, higher than the 2000 rate of 8.264 percent.¹² See Figure 3. However, over the same period, the city's average assessments in relation to market values—the so-called assessment ratio—fell 9 percentage points, or 42 percent, from 22 percent to 13 percent, according to the analyses done by both Strauss and Gillen. See Figure 4.

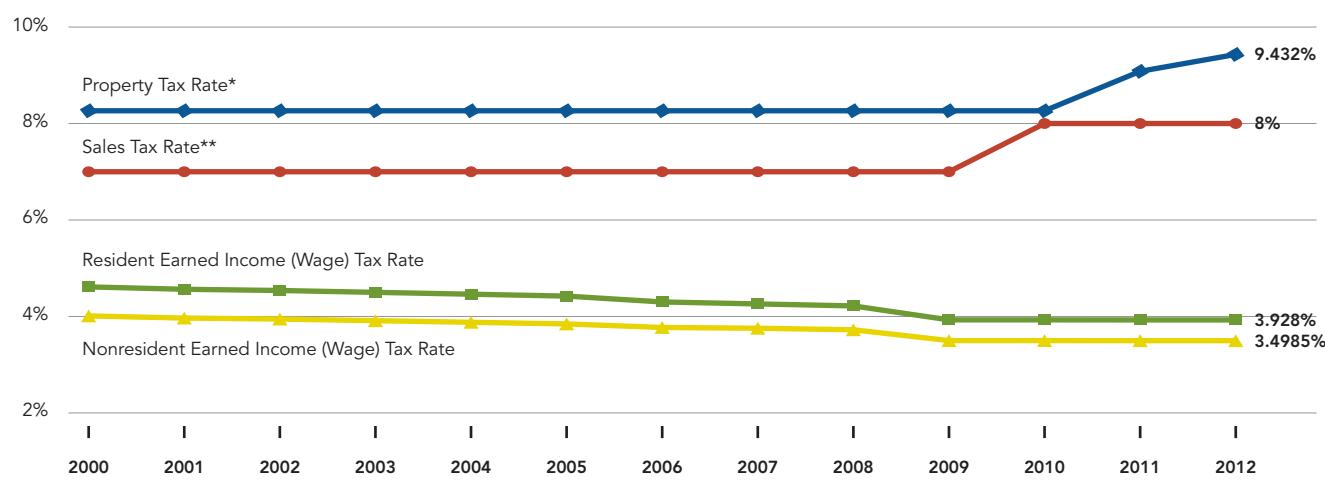
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FIGURE 3

PHILADELPHIA WAGE, PROPERTY AND SALES TAX RATES

2000 TO 2012

The four Philadelphia tax rates used in this study are shown as of January 1 of each year. Slight annual reductions in the wage tax rates stopped in 2008, when a fiscal crisis caused by the recession led the city to suspend them. Philadelphia raised its portion of the sales tax in 2009 and started raising property tax rates in 2010. Wage tax rate cuts are to resume in July 2013, and the sales tax rate is scheduled to revert from 8 percent to 7 percent in July 2014.



*Property tax rates consist of city real estate tax and school tax, each with its own rate or millage. From 2000 to 2008, the city raised the school tax millage and lowered the city real estate millage by identical amounts, leaving the total unchanged.

**The Pennsylvania sales tax rate has been 6 percent since 1968. Philadelphia, with state authorization, added 1 percentage point in 1991 and another point in 2010.

SOURCE: City of Philadelphia.

Another factor behind Philadelphia's falling tax burden was the reduction in city wage tax rates. Between July 2000 and June 2009, when the rate cuts were put on hold in response to the recession, the city had reduced the tax rates by about 17 percent for residents, to 3.928 percent, and by about 14 percent for nonresidents, to 3.4985 percent.¹³ The city's annual wage tax rate reductions are set to resume in July 2013.

Sales taxes, the third component of the tax burden as we define it, rose at the end of the period. In 2009, with state permission, City Hall upped the rate by 1 percentage point, bringing the total to 8 percent. In comparison, the sales tax rate in the Pennsylvania suburbs remained at 6 percent and rose in New Jersey by 1 percentage point to 7 percent. The city's sales tax is set to revert to 7 percent in July 2014.

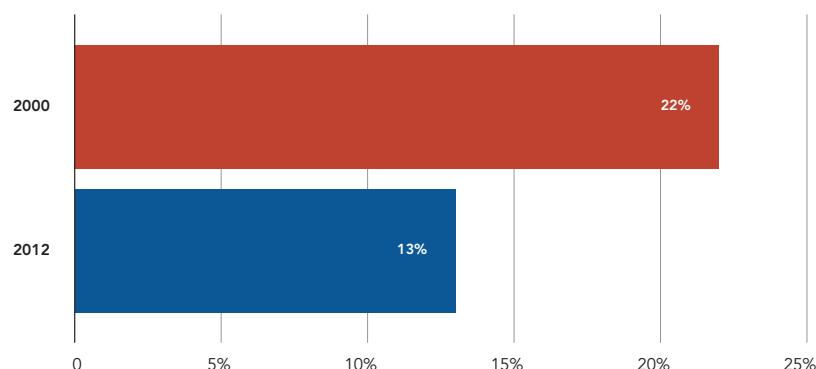
A Narrowing Gap between Philadelphia and its Suburbs

FIGURE 4

PHILADELPHIA ASSESSMENT RATIOS

2000 AND 2012

The assessment ratio measures the difference between the sale prices of properties and the city's property assessments. This drop over the decade drove much of Philadelphia's decline in tax burden, expressed as percentage of income.



SOURCE: Philadelphia Research Initiative analysis based on the findings of Robert P. Strauss, Carnegie Mellon University, and Kevin C. Gillen, a Philadelphia-based real estate economist.

PHILADELPHIA COMPARED TO OTHER CITIES

The choices that families make about where to live typically involve municipalities within a region. For that reason, our focus was on the tax effect of living in one place versus another within the Philadelphia metropolitan area.

That said, in national rankings compiled annually by the chief financial officer of Washington, D.C., Philadelphia was near the top in state and local tax burden for 2010, the last year available, much as it has been for the last several years. The D.C. study includes 51 cities—the largest in each of the 50 states plus Washington itself.

The rankings shown here—which are based on somewhat different assumptions than ours—are for families of three with incomes of \$50,000. At the \$25,000-income level, Philadelphia had the highest burden in this study; at the \$150,000 level, it was fourth behind Bridgeport, Conn.; New York City and Louisville.¹⁴

It should be noted that authors of the D.C. study, in calculating the property tax share of the overall burden for Philadelphia, used the city's official 2010 assessment ratio, 32 percent. By doing so, they effectively assumed that properties were taxed at 32 percent of fair market value. Our experts' analysis has determined that the actual percentage figure was much lower. This would mean that the D.C. study overestimated how much property tax Philadelphians paid. Even so, the city's tax burden would still be in the top 10.

RANK OF SELECT MAJOR CITIES BY TAX BURDEN, 2010

FOR A FAMILY EARNING \$50,000 A YEAR

RANK	CITY
1	Bridgeport, Conn.
2	Philadelphia
3	Louisville
4	Detroit
5	Newark, N.J.
6	Columbus, Ohio
7	Providence
8	Los Angeles
9	Milwaukee
10	Boston

A Narrowing Gap between Philadelphia and its Suburbs

The Pennsylvania Suburbs

Across the Pennsylvania suburbs that we studied, the average local and state tax burden rose over the last 12 years, both for commuters working in the city and noncommuters who live and work in the suburbs.

For suburbanites not working in Philadelphia, the combined state and local tax burden rose on average from 9.8 percent in 2000 to 12.2 percent in 2012. On average, our hypothetical family living and working in the suburbs still bore a lower local tax burden than it would have by living in Philadelphia. But the magnitude of the suburban tax advantage shrank dramatically, down from 3.7 points in 2000 to just 0.7 percentage point in 2012. In dollar terms, the tax advantage of living and working in the Pennsylvania suburbs instead of Philadelphia amounted to \$427 a year for our \$60,000-a-year family, down sharply from an inflation-adjusted \$2,364 in 2000.

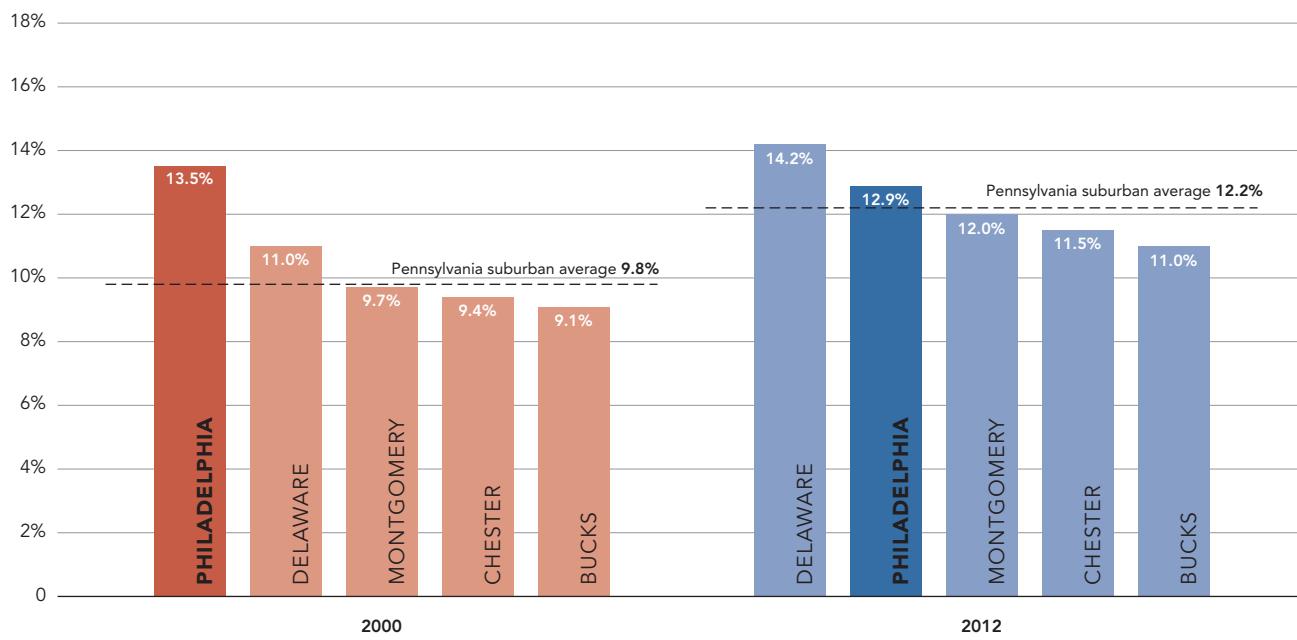
Among all the Pennsylvania counties studied, the difference from Philadelphia's tax burden changed most starkly on average in Delaware County, where it went from 2.5 percentage points below the city burden to 1.3 points above the city burden. See Figure 5.

FIGURE 5

LOCAL AND STATE TAX BURDENS FOR PHILADELPHIA RESIDENTS AND PENNSYLVANIA SUBURBAN NONCOMMUTERS BY COUNTY

2000 AND 2012

In southeastern Pennsylvania, the 2012 state and local tax burden on our hypothetical family, shown as a percentage of income, was heaviest in municipalities in Delaware County, on average, followed by Philadelphia. This is a shift from 2000, when Philadelphia had a higher burden than the averages for the other counties. The change was primarily due to property assessments that were lower in comparison to market value in Philadelphia than in the average suburbs, and to a series of wage-tax cuts in the city—in contrast with earned-income tax hikes in many suburbs.*



*All suburban figures are based on 30 select municipalities—120 total—in each of Bucks, Chester, Delaware and Montgomery Counties.
SOURCES: Each municipal government, Commonwealth of Pennsylvania, Philadelphia Research Initiative analysis.

A Narrowing Gap between Philadelphia and its Suburbs

In a notable reversal, commuting from the Pennsylvania suburbs to Philadelphia, for the most part, had become a tax disadvantage in 2012; such commuters had the highest tax burdens in the region. In other words, these families would have saved tax dollars if they lived as well as worked in the city. In many cases, they would have saved even more had they found comparable-paying jobs in the suburbs instead.

On average, the commuting family's tax burden in 2012 was 2.1 percentage points higher than it would have been had the family lived in the city. In 2000, the commuting family's burden was 0.3 point lower. The change is largely the result of increased tax burdens in the suburbs, and secondarily the lower tax burden in the city over the 12-year period.

In dollar terms, the reversal means that living in the Pennsylvania suburbs in 2012, rather than the city, cost our commuting family about \$1,281 in taxes—most of it in property taxes. In 2000, our family saved \$193, adjusted for inflation, by living in the suburbs instead of the city.

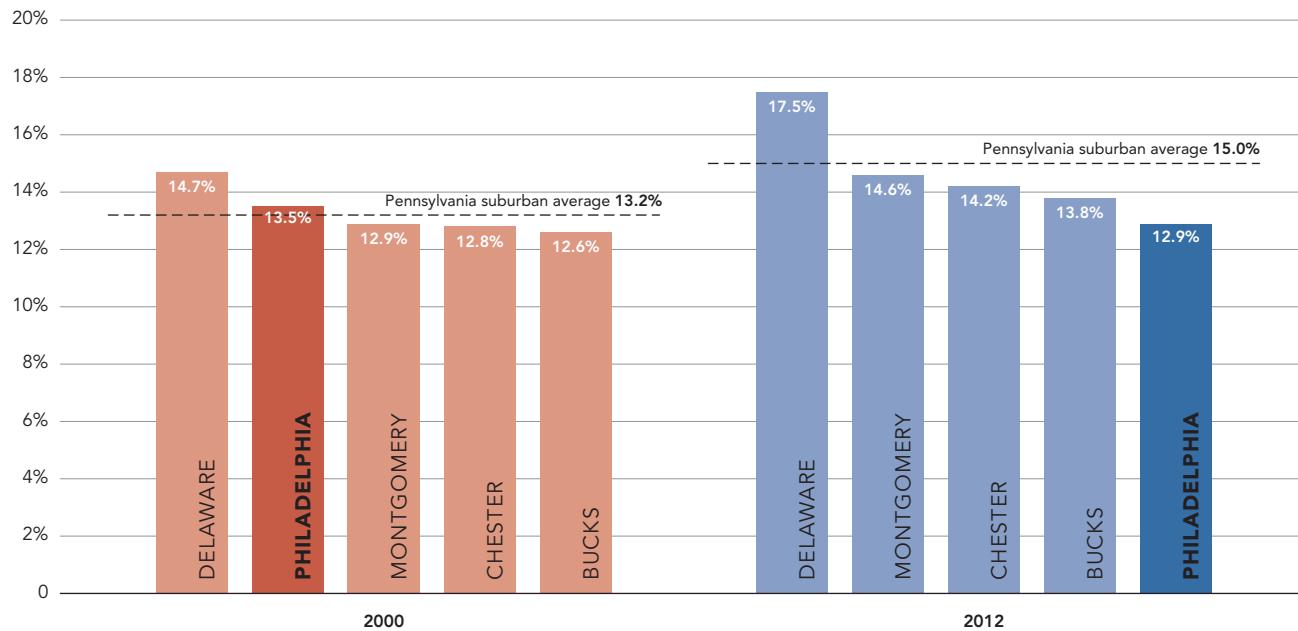
In comparing each suburban county to Philadelphia, our analysis found that the highest tax burdens for commuters on average were in Delaware County. That was also true in 2000. See Figure 6.

FIGURE 6

LOCAL AND STATE TAX BURDENS FOR PHILADELPHIA RESIDENTS AND PENNSYLVANIA SUBURBAN COMMUTERS BY COUNTY

2000 AND 2012

In 2012, the state and local tax burden on a hypothetical commuting family, shown as a percentage of income, was heavier in each of the four Pennsylvania suburban counties than it would have been had the family lived in Philadelphia. This had not been the case in 2000. The shift was driven by rising income and property taxes in the suburbs, and Philadelphia's wage tax cuts and undervalued property assessments compared to the suburbs.



All suburban figures are based on 30 select municipalities—120 total—in Bucks, Chester, Delaware and Montgomery Counties.

SOURCES: Each municipal government, Commonwealth of Pennsylvania, Philadelphia Research Initiative analysis.

A Narrowing Gap between Philadelphia and its Suburbs

A major cause of the change in the city-suburban tax gap was rising suburban taxes. Since 2000, many Pennsylvania suburbs saw their effective property tax rates go up. At the same time, a number of towns adopted or raised their own local earned-income taxes—allowed by state law up to 1 percent—or school districts raised their part of local income taxes. In 2000, 74 of the 120 municipalities in our study had local earned-income taxes. By 2012, 88 municipalities had them, with the increase partly due to changing demographics and growing costs of schools, police, roads and other services. Over the same period, Philadelphia lowered its resident and nonresident wage tax rate.

Another factor was that Philadelphia’s property assessments did not keep pace with its rising market values over the period studied. According to a variety of experts and officials of Pennsylvania’s State Tax Equalization Board, tax authorities in most suburbs generally have kept property assessments consistent across different parcels and closer to market values, while Philadelphia has tended to be less consistent and less up-to-date. The result was faster-rising property tax bills in the suburbs than in the city during the housing boom between 2001 and 2007. In comparison to their suburban peers, many Philadelphia property owners ended up with an effective property tax break over the last 12 years.

The reduction of the overall suburban tax advantage over the city is the continuation of a trend. Professor Inman’s initial research in 1994, based on a slightly different set of assumptions, found the gap to be 6.5 points for noncommuters and 2.7 points for commuters. Both were lower in the 2000 report.¹⁵

Even so, on a town-by-town basis, most suburban noncommuters remain less heavily taxed than Philadelphians. In 2012, city residents had a higher tax burden than did residents of all but 31 of the 120 Pennsylvania suburban municipalities in our study. The lowest tax burdens for our middle-income family were in Upper Merion Township in Montgomery County and Easttown Township in Chester County, the highest in Darby and Yeadon Boroughs in Delaware County. See Figure 7. Among all 237 municipalities studied in Pennsylvania and New Jersey, with the suburbs ranked by the burden they imposed on noncommuters, Philadelphia’s tax burden was 48th highest, down from third highest a decade earlier.

A Narrowing Gap between Philadelphia and its Suburbs

FIGURE 7

TOP 10 AND BOTTOM 10 PENNSYLVANIA SUBURBAN TAX BURDENS, 2012

RANKED BY BURDEN ON NONCOMMUTERS*

COUNTY	MUNICIPALITY	STATE AND LOCAL TAX BURDEN ON NONCOMMUTERS	STATE AND LOCAL TAX BURDEN ON COMMUTERS
HIGHEST			
Delaware	Darby Borough	18.9%	21.6%
Delaware	Yeadon Borough	17.3%	19.9%
Delaware	Lansdowne Borough	16.8%	20.4%
Delaware	Lower Chichester Township	16.7%	19.4%
Delaware	Upper Darby Township	16.6%	20.3%
Delaware	Upper Chichester Township	16.3%	18.9%
Delaware	Collingdale Borough	16.3%	19.9%
Delaware	Darby Township	16.2%	19.8%
Delaware	Folcroft Borough	16.1%	18.8%
Delaware	Ridley Park Borough	16.0%	19.7%
PHILADELPHIA		12.9%	12.9%
LOWEST			
Chester	Birmingham Township	10.1%	13.8%
Chester	East Bradford Township	10.1%	12.5%
Bucks	Newtown Township	10.0%	12.7%
Montgomery	Plymouth Township	10.0%	12.7%
Montgomery	Whitpain Township	10.0%	12.6%
Chester	Thornbury Township	9.9%	12.6%
Delaware	Thornbury Township	9.9%	12.6%
Bucks	Solebury Township	9.7%	12.4%
Chester	Easttown Township	9.6%	13.2%
Montgomery	Upper Merion Township	9.1%	12.8%

*Rankings come from 30 select municipalities—120 in all—in each of Bucks, Delaware and Montgomery Counties. Tax burdens are shown as a percentage of income.

SOURCE: Each municipal government, Commonwealth of Pennsylvania, Philadelphia Research Initiative analysis.

Delaware County dominated the list of Pennsylvania suburban municipalities with the heaviest average residential tax burden, as well as the steepest growth in average tax burden. Chester County and Montgomery County had the most municipalities with the lowest average residential tax burdens among those studied for our hypothetical middle-income family.

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New Jersey

Our figures for New Jersey are from 2000 and 2011, the last year available as of the publication of this report. The tax burden for our model median-income family living in the city's New Jersey suburbs rose over the period, both for adults commuting to work in Philadelphia and for noncommuters working in New Jersey.

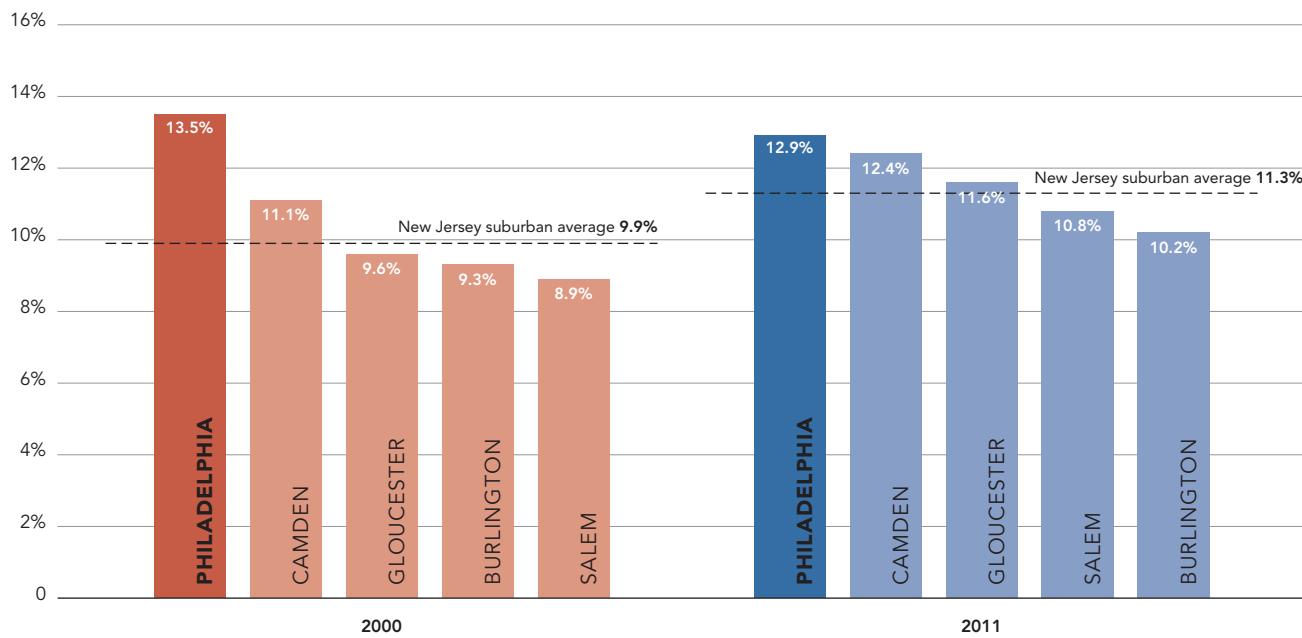
For our family with no adults working in Philadelphia, the tax burden from both state and local taxes in the New Jersey suburbs went from 9.9 percent on average in 2000 to 11.3 percent in 2011. That reduced New Jersey's tax advantage over Philadelphia to 1.6 percentage points for the noncommuting family; it had been 3.6 points in 2000. See Figure 8. In dollars, our hypothetical family saved \$983 in state and local taxes by living and working in New Jersey instead of the city in 2011, down from an inflation-adjusted \$2,313 in 2000.

FIGURE 8

LOCAL AND STATE TAX BURDENS ON PHILADELPHIA RESIDENTS AND NEW JERSEY NONCOMMUTERS BY COUNTY

2000 AND 2011*

Philadelphia continued to place a heavier state and local tax burden on our hypothetical family than did the municipalities in each of four New Jersey suburban counties, on average. But the gap between the city and the suburban New Jersey average narrowed considerably, mainly due to the increase in the New Jersey suburbs' tax burden. Tax burdens are shown as a percentage of income.



*The final year in this chart was 2012 for Philadelphia and 2011 for the New Jersey suburbs, the last year their rates were available.

SOURCES: Each municipal government, State of New Jersey, Philadelphia Research Initiative analysis.

A Narrowing Gap between Philadelphia and its Suburbs

For our median-income family with adults working in Philadelphia, commuting from New Jersey posed a slight tax disadvantage in 2011 compared to living in Philadelphia. That is a change from 2000.

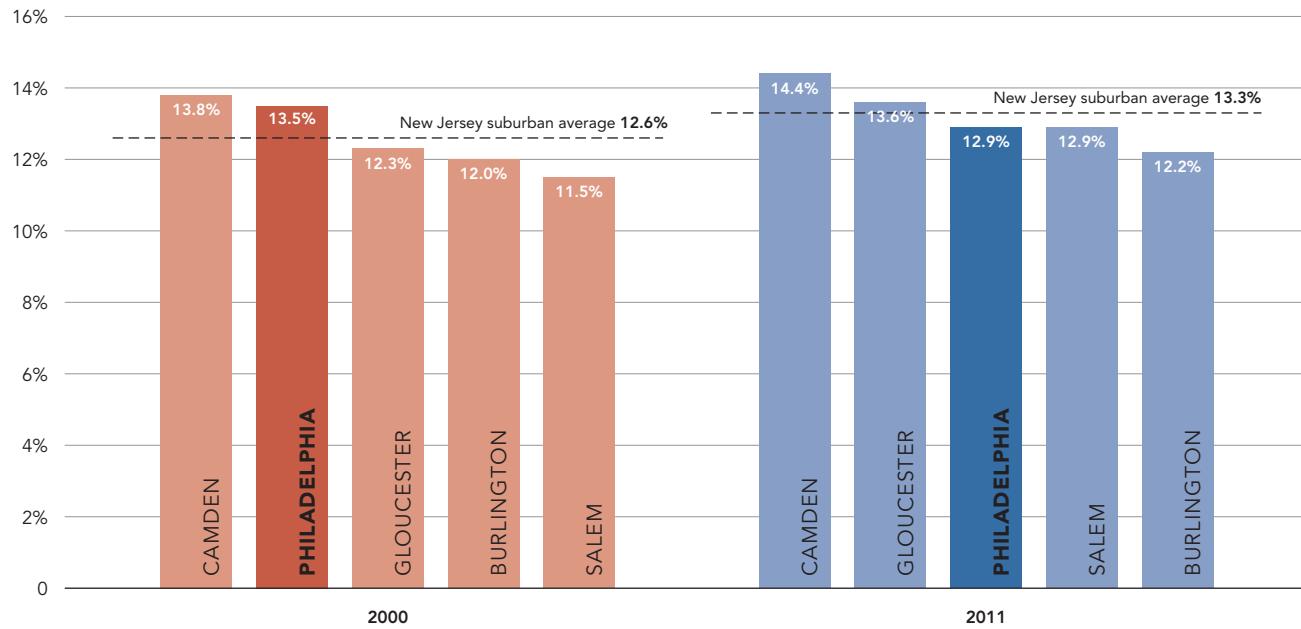
In 2000, the family enjoyed a tax advantage of 0.9 percentage point, \$624 adjusted for inflation, by living in New Jersey while working in Philadelphia. In 2011, the family paid a premium of 0.4 percentage point, or \$232. On average, the commuting family's tax burden rose from 12.6 percent in 2000 to 13.3 percent in 2011. See Figure 9.

FIGURE 9

LOCAL AND STATE TAX BURDENS ON PHILADELPHIA RESIDENTS AND NEW JERSEY COMMUTERS BY COUNTY

2000 AND 2011*

In New Jersey, the average state and local tax burden on a hypothetical commuting family in 2011, shown as a percentage of income, was higher than Philadelphia's in Camden and Gloucester, lower than Philadelphia's in Burlington County, and roughly the same in Salem County.



*The final year in this chart was 2012 for Philadelphia and 2011 for the New Jersey suburbs, the last year their rates were available.

SOURCES: Each municipal government, State of New Jersey, Philadelphia Research Initiative analysis.

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The tax burden in the New Jersey suburbs was higher in 2011 than in 2000 largely because of rising property taxes, driven by an increase in assessed home values that canceled out a slight decline in tax rates.¹⁶ New Jersey officials appear to have done a better job of keeping up with market values than officials in Philadelphia. The state did loosen the eligibility requirements for its property tax relief program to the benefit of our median-income family, which had not qualified for it in 2000. But the relief was not large enough to offset the growth in property assessments. At the same time, New Jersey's sales tax rose from 6 percent to 7 percent. In addition, the state income tax liability for our family rose from 1.59 percent to 1.69 percent; its income at the regional median put it in a slightly higher tax bracket in 2011 than in 2000.¹⁷

We emphasize that these findings apply strictly to a hypothetical middle-income family, which in both time periods fell into one of the lower tax brackets of New Jersey's graduated income tax system and did not face the higher rates imposed in 2011 on the state's highest-income earners.

The main reason that New Jersey commuters saw a smaller increase in tax burden than did New Jersey noncommuters has to do with wage and income taxes. Under a reciprocal agreement between New Jersey and Pennsylvania, New Jersey residents who work in Philadelphia can deduct all of their nonresident Philadelphia wage tax against their New Jersey income tax; as a result, our middle-income commuting family was able to avoid paying New Jersey state income tax. The agreement also exempts commuters from the Pennsylvania state income tax, which rose during the period. At the same time, the commuting family benefited from cuts in Philadelphia's nonresident wage tax. This confluence of factors does not apply to upper-income New Jersey commuters.

For noncommuters in New Jersey, Camden County had many of the municipalities with the highest tax burdens, led by Woodlynne Borough. Burlington County had most of the municipalities with the lowest tax burdens, led by Washington Township, though Lower Alloways Creek in Salem County was the lowest of all. See Figure 10.

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FIGURE 10

TOP 10 AND BOTTOM 10 NEW JERSEY TAX BURDENS, 2011

RANKED BY BURDEN ON NONCOMMUTERS*

COUNTY	MUNICIPALITY	STATE AND LOCAL TAX BURDEN ON NONCOMMUTERS	STATE AND LOCAL TAX BURDEN ON COMMUTERS
HIGHEST			
Camden	Woodlynne Borough	16.3%	18.4%
Camden	Audubon Park Borough	15.5%	17.6%
Camden	Laurel Springs Borough	14.8%	16.8%
Gloucester	Woodbury City	14.5%	16.5%
Salem	Salem City	14.4%	16.4%
Camden	Pine Hill Borough	14.1%	16.1%
Salem	Penns Grove Borough	13.9%	15.9%
Camden	Lindenwold Borough	13.8%	15.8%
Gloucester	National Park Borough	13.8%	15.8%
Camden	Mount Ephraim Borough	13.8%	15.8%
PHILADELPHIA		12.9%	12.9%
LOWEST			
Burlington	Woodland Township	9.2%	11.2%
Burlington	Hainesport Township	9.0%	11.0%
Burlington	North Hanover Township	8.6%	10.6%
Burlington	Bass River Township	8.2%	10.2%
Camden	Pine Valley Borough	8.1%	10.1%
Camden	Tavistock Borough	8.0%	10.0%
Burlington	Pemberton Borough	7.9%	9.9%
Burlington	New Hanover Township	7.9%	9.9%
Burlington	Washington Township	7.6%	9.6%
Salem	Lower Alloways Creek	6.3%	8.3%

*Rankings come from a cohort of 116 municipalities in Burlington, Camden, Gloucester, and Salem Counties. Tax burdens are shown as a percentage of income.

SOURCES: Each municipal government, State of New Jersey, Philadelphia Research Initiative analysis.

CONCLUSION

From 2000 to 2012, the tax burden on a hypothetical home-owning family—with an income near the regional median—rose in most municipalities across the region but fell in Philadelphia. As a result, the tax disadvantage of living in Philadelphia, as opposed to living and working in the suburbs, narrowed substantially. And in contrast to the situation in 2000, Philadelphians were shouldering a lighter tax burden in 2012 than commuters in most cases.

These findings suggest that the competitive position of Philadelphia, when it comes to the residential tax burden, improved vis-à-vis many suburbs through the period. This was a period in which Philadelphia gained population for the first time in half a century, according to the Census Bureau, and in which the city experienced a reduction in the net outflow of residents to the suburbs, according to the Internal Revenue Service. According to research by Inman and other economists, the narrowing tax gap between city and suburb played a role in those trends.¹⁸

Philadelphia's lower tax burden had other consequences. One major driver of the decrease was the fact that Philadelphia property tax assessments did not keep up with home values as much as they did in many suburbs. While the resulting assessments held down property tax bills for city residents, they also kept down tax collections to pay for services, including schools. Since the onset of the recession, city officials have raised property tax rates three times, with the latest increase going into effect in 2013. Now city leaders and activists are debating how to bring property assessments closer in line with market values without sending tax bills soaring.

Property taxes were not the only factor in Philadelphia's falling tax burden. The city reduced its local wage tax rates over most of the 12 years, while many suburbs raised local earned-income taxes.

Even so, Philadelphia residents bore a higher tax burden than noncommuting residents of nearly 80 percent of the municipalities in the region. And the city continued to stand out from its neighbors in the heavier burden it imposed on the family's wages and the lighter burden on property—a combination that some finance experts have argued drives out high-income jobs and residents.¹⁹

Ultimately, Philadelphia's challenge is finding the optimum level and mix of income, sales and property taxes—and other taxes not included in this study—that will be considered fair, will pay for needed city services, will give existing residents reason to stay, and will not deter would-be Philadelphians from moving in.

ENDNOTES

- ¹ Gary Ritter, Candice Hufford and David Thornburgh, "State and Local Tax Burdens in the Philadelphia Region: The 2001 Report," published in the Greater Philadelphia Economy League's *Regional Review*, Summer 2001.
- ² We use the regional median household income for sake of clear comparisons, even though household incomes vary greatly by county. According to Census survey estimates for 2008-2010, the median household income in Philadelphia was \$35,952; Bucks County \$74,941; Chester County \$84,095; Delaware County \$62,603; Montgomery County \$76,027; Burlington County \$76,072; Camden County \$60,242; Gloucester County \$72,133; and Salem County \$58,367.
- ³ Income data from the U.S. Census Bureau American Community Survey; home price data from Kevin C. Gillen. Our use of varying income-to-home value multipliers differs from the methodology used in the 1994, 1997 and 2000 studies, which used a constant multiplier of 3.0.
- ⁴ Strauss' biography may be found at <http://www.andrew.cmu.edu/user/rs9f> and Gillen's biography at www.econsult.com/articles/Gillen_Bio.pdf. At our request, Strauss and Gillen each used slightly different formulas to estimate the ratios from the same set of property records obtained the City of Philadelphia. Both of their methodologies also differed from the one used by the Pennsylvania State Tax Equalization Board, which was the basis for calculations in previous studies by Inman and the Economy League. See Methodological Appendix for a detailed explanation.
- ⁵ The 1994, 1997 and 2000 studies used a similar sales-tax breakdown by purchase locations. But they used a total figure of 40 percent of income subject to sales taxes. We lowered the amount to 30 percent based on consultation with John Mikesell, a tax expert and professor of public environmental affairs at Indiana University, Bloomington. See Methodological Appendix.
- ⁶ Mark Fazlollah and Joseph Tanfani, "Tax Travesty: Chaos and cronyism inside the Bureau of Revision of Taxes," *Philadelphia Inquirer*, 2009 series found at www.philly.com/philly/hot_topics/39325332.html; Anthony R. Wood and Dylan Purcell, "Real Estate Roulette: Philadelphia's 'unbelievable' assessments confound property owners with wildly inequitable taxes," *Philadelphia Inquirer*, June 22, 2008; Tom Ferrick, "The End of the Deal," www.phlmetropolis.com, May 3, 2012, available at www.phlmetropolis.com/tag/tom+ferrick+jr.
- ⁷ Dollars in 2000 are inflation-adjusted into 2012 equivalent dollars at a rate of 1.33, based on U.S. Bureau of Labor Statistics inflation calculator found at www.bls.gov/data/inflation_calculator.htm.
- ⁸ The effective property tax rate is derived by multiplying the city's nominal property tax rate by an assessment ratio. The assessment ratio is the difference between actual assessments and fair-market sale prices of properties. See Methodological Appendix.
- ⁹ Kevin C. Gillen, "Updated Results on Property Assessment Accuracy, Uniformity and Equity in Philadelphia," Econsult Corp., 2008, found at <http://media.philly.com/documents/taxproj07gillen08.pdf>.
- ¹⁰ For 2000, Philadelphia's assessment ratio was 28.7 percent as published by the State Tax Equalization Board. For 2011, the last year available, the board first published a ratio of 18.1 percent and later revised it to 25.2 percent.

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¹¹ "How changes in property values might affect neighborhoods across Philadelphia: Presentation to City Council April 2012," found at <http://media.philly.com/documents/Council+District+GMA+values+presentation.pdf>.

¹² City of Philadelphia Department of Finance. Our study used property tax rates as of January 2012. It does not include another rate hike approved in June 2012 and set to take effect in January 2013.

¹³ City of Philadelphia Department of Finance. The cumulative reductions were 0.684 percentage point for residents, and 0.511 point for nonresidents. Since 2006, the city has used revenue from casino taxes to hold down wage tax rates.

¹⁴ Tax Burden Comparisons, Office of the Chief Financial Officer, District of Columbia. Found at <http://cfo.dc.gov/cfo/cwp/view,a,1324,q,612643.asp>.

¹⁵ See "State and Local Tax Burdens in the Philadelphia Region: The 2001 Report."

¹⁶ Effective property tax rates in New Jersey are based on official figures published by the New Jersey Department of Treasury and Department of Community Affairs. See Methodological Appendix.

¹⁷ New Jersey Department of Treasury. The graduated income tax rates ranged from 1.4 percent to 6.37 percent in 2000 and from 1.4 percent to 8.97 percent in 2012. See Methodological Appendix.

¹⁸ U.S. Census Bureau population estimates, found at www.census.gov/popest; U.S. Internal Revenue Service county-level migration data, found at <http://www.irs.gov/taxstats/article/0,,id=212683,00.html>; Andrew Haughwout, Robert Inman, Steven Craig, Thomas Luce, "Local Revenue Hills: Evidence from Four U.S. Cities," found at <http://www.newyorkfed.org/research/economists/haughwout/nberwp9686.pdf>.

¹⁹ Mayor's Task Force on Tax Policy & Economic Competitiveness, 2009, reports and documents found at www.phila.gov/taxpolicy; Philadelphia Tax Reform Commission, 2003, reports and documents found at www.philadelphiataxreform.org.

METHODOLOGICAL APPENDIX

This study looks at a hypothetical family's tax burden from three state and local (nonfederal) taxes: earned income, sales and property taxes. The point is to show that tax advantages and disadvantages exist among various municipalities and that they have shifted between 2000 and 2012—rather than to provide a formula that applies to actual families in all cases.

The study relies on a modification of a formula created by Professor Robert P. Inman of the Wharton School at the University of Pennsylvania and subsequently used in three reports covering 1994, 1997 and 2000. The modifications were retroactively imposed to provide comparability. Most rates in this study were compiled and calculated by Tess Mullen of the Fels Institute of Government's Research and Consulting practice at the University of Pennsylvania.

Assumptions About the Family

Our hypothetical family consists of a home-owning married couple under age 65 and filing taxes jointly with two dependent children. We assumed its household income was \$60,000 in 2012 and \$47,500 in 2000, each figure closely approximating the actual median household income in each year for the Philadelphia metropolitan region as determined by the U.S. Census Bureau. The family's income came entirely from wages. Readers whose personal situations diverge from those of our hypothetical family are cautioned against making direct extrapolations to their own situations, since many other variables may be in play. For instance, our model does not take into account renters or people who rely significantly on income from investments.

On sales taxes, we assumed that the family spent 30 percent of its income on purchases of goods subject to sales taxes. We arrived at 30 percent by dividing Pennsylvania's statewide personal (nonbusiness) sales tax collections by Pennsylvania's statewide personal gross taxable income, a formula suggested by Professor John L. Mikesell of Indiana University, Bloomington, an expert on the subject. When the family lived in Philadelphia, we assumed that it made half of its sales-taxable purchases in the city and half in the Pennsylvania suburbs regardless of where the family's adults worked. When the family lived in either the Pennsylvania or New Jersey suburbs with adults working in Philadelphia, we assumed it made three-quarters of its purchases in the suburbs and one-quarter in Philadelphia. When it lived and worked in the suburbs, we assumed the family made all of its purchases in the suburbs.

On property taxes, we set the fair-market value of the family's home at 3.1 times the median household income for our 2011-2012 calculations (\$186,000), and 2.3 times income for the 2000 calculations (\$109,250). Those multipliers match the actual ratios of median home prices to median household income for each time period across the counties studied, according to data from the U.S. Census Bureau's American Community Survey and Kevin C. Gillen, a Philadelphia-based economist and real estate analyst.

All calculations are based on three assumed scenarios for the family's home and work location: the family's home is in the suburbs and its adults work in Philadelphia where they pay the city's nonresident wage tax (suburban commuters); the family's home and jobs are both in the suburbs (suburban noncommuters); or the family's home is in Philadelphia and its adults work in either the city or suburbs (city residents).

Defining and Calculating Tax Burden

We define tax burden as the hypothetical family's aggregate state and local tax liability—income, sales and property taxes—divided by its annual earned income and expressed as a percentage of its income. It also may be considered an effective aggregate nonfederal tax rate. The formula is:

$$\begin{aligned} \text{Tax Burden} = & \\ (\text{Effective Property Tax Rate} \times \text{Home Value}) + ((\text{Income} \times (\text{State + Local Income Tax Rates})) + \\ (\text{Sales Tax Rate} \times \text{Income Spent on Sales-Taxable Purchases}) / \text{Income} \end{aligned}$$

Each variable is calculated from rates applicable as of July 2000 and July 2012 (or the closest available to those dates) in each of the following 237 municipalities: Philadelphia; all 116 municipalities in Burlington, Camden, Gloucester and Salem Counties in New Jersey; and 120 municipalities in Bucks, Chester, Delaware and Montgomery Counties in Pennsylvania—30 of the most populous in each county based on their populations at the time of the original 1994 study. To keep the report manageable, about 120 other Pennsylvania municipalities in the metropolitan region were not included, most of them with relatively small populations. We also excluded municipalities in New Castle County, Del., and Cecil County, Md., that the Census Bureau typically includes in the Philadelphia metropolitan region.

Explanation of Data Collection and Analysis: Pennsylvania

Property Tax Rate

Each municipality, county and school district sets a tax rate (also known as a millage) on assessed properties for purposes of collecting municipal, county, and school taxes. For each municipality, we added the applicable rates together, resulting in an aggregate property tax rate. The nominal rates for each municipality for 2000 and 2012 were gathered from the following county websites:

Bucks County: <http://www.buckscounty.org/>

Chester County: <http://www.chesco.org/chesco/cwp/view.asp?A=1413&Q=573814>

Delaware County: <http://www.co.delaware.pa.us/treasurer/index.html>

Montgomery County: <http://boa.montcopa.org/boa/cwp/view,a,3,q,53796.asp>

Philadelphia County: <http://www.phila.gov/revenue/>

Assessment Ratio

From county to county, different assessors set different values and assessments on similarly priced properties. To account for and equalize these differences for comparison purposes, we multiplied each local aggregate property tax rate by an assessment ratio specific to its county. The assessment ratio is the difference between actual assessed values and fair-market values of select residential and commercial properties within the county.

For each suburban municipality, we used the Pennsylvania State Tax Equalization Board's assessment ratio, also called the Common Level Ratio or CLR (found at www.steb.state.pa.us). The CLRs are published each July covering the preceding calendar year. For this study, we used the following CLRs:

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	2000	2011*
Bucks County	4.10 percent	10.82 percent
Chester County	85.47 percent	59.02 percent
Delaware County	97.09 percent	72.23 percent
Montgomery County	89.29 percent	61.98 percent

*Last available

For Philadelphia, we chose not to use the state board's CLR of 28.7 percent in 2000 and 25.2 percent in 2011. Instead we conducted an independent analysis to determine the assessment ratios for both time periods. We did so after consulting with a variety of tax experts, including two directors of the equalization board, who expressed doubts about the underlying data submitted to the board for the city's CLR. We obtained the city's full set of tax records on approximately half a million commercial and residential parcels in 2000 and 2012 and contracted with two experts to calculate the assessment ratios. They are Robert P. Strauss, professor of economics and public policy at Carnegie Mellon University, and Kevin C. Gillen. Each used a slightly different methodology but arrived at similar results showing substantially lower assessment ratios than city and state officials had previously estimated.

STRAUSS METHOD: Using a method recommended by the International Association of Assessing Officers (IAAO), Strauss first isolated sales with recorded dates in the three calendar years preceding our study periods, or 1997-1999 for 2000, and 2009-2011 for 2012. Then he eliminated sales in which the sum of land assessment and building assessment was zero, presuming them to be fully exempt properties. Based on IAAO recommendations, Strauss further eliminated sales in which the sale price was \$1,000 or less; these were presumed not to be fair-market "arm's length" transactions. This resulted in 70,498 sales of taxable properties in the 1997-1999 sample and 75,326 sales in the 2009-2011 sample. Using the association's recommended methodology for trimming very low ratios and very high ratios, likely due to data errors or non-arm's length sales, Strauss trimmed the data further by ordering each set of ratios from smallest to largest. The ratios at the 25th percentile, 50th percentile and 75th percentile were observed. Then the interquartile range (IQR) was calculated; the interquartile range is the difference between the 75th percentile ratio and 25th percentile ratio. Using the IAAO method to set the "top" boundary above which ratios would be eliminated, Strauss added the 75th percentile ratio to $1.5 \times$ the interquartile range. To set the "bottom" ratio below which ratios would be trimmed, he subtracted the 25th percentile ratio from $1.5 \times$ the interquartile range. He removed the sales with ratios above and below those boundaries, then calculated the average (mean) and median of the remaining ratios as follows:

	1997-1999	2009-2011
Average assessment ratio	22.6 percent	12.1 percent
Median assessment ratio	22.4 percent	11.4 percent

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GILLEN METHOD: Gillen first eliminated any parcel with the following conditions: it had a partial or full exemption on the land or building; had been sold in a sheriff sale; had been sold in an institutional sale with a bank or government agency listed as the grantor or grantee; had changed hands more than once per year; had a buyer and seller with the same surname, presumed to be relatives; had square footage of less than 500 feet, presumed to be an abandoned or vacant lot; had a sale price of \$10,000 or less, presumed to be not an arm's length sale. He then isolated the transactions with sale dates during calendar years 1999 and 2011 only, for purposes of comparison to single-year STEB ratios. These trims resulted in a 1999 sample of 15,245 transactions and 2011 sample of 13,708 transactions. Gillen then calculated the median ratio of assessment to home-sale value of three sample sizes: all arm's length transactions; all arm's length transactions minus properties where the recorded price or price/square foot was in the top or bottom 1 percent of the distribution for these variables across all transactions in that year; and all arm's length transactions minus the 1 percent outliers and minus properties where the assessment ratio exceeded the upper or lower bound of $1.5 \times$ the interquartile range (IQR) across all transactions in that year. His resulting ratios were:

	1999	2011
Arm's length	21.76 percent	12.95 percent
Arm's length - 1% outliers	21.79 percent	12.97 percent
Arm's length - 1% outliers - IQR outliers	21.46 percent	12.62 percent

Given the generally consistent findings of Strauss and Gillen, we felt comfortable using the following rounded medians of all their results for calculating our property tax burden figure for Philadelphia for each time period:

	2000	2012
Philadelphia assessment ratio	22 percent	13 percent

Property Tax Relief (Homestead Exemption) in Pennsylvania

Our hypothetical family did not qualify for various Pennsylvania or Philadelphia property tax relief programs in place in 2000, most of them geared to senior citizens. In 2006, the Pennsylvania Taxpayer Relief Act (Act 1) was signed into law allowing school districts to use gaming revenue to reduce residents' tax burdens. School districts do this by granting homeowners a "homestead exemption," which reduces their school property tax bills. The homestead exemption program does not have income limits and provides all homeowners within a district the same amount of school tax relief. For our study, we used the Pennsylvania Department of Education's calculation of the average amount of homestead tax relief delivered each year to each household in each school district, found at: http://www.portal.state.pa.us/portal/server.pt/community/property_tax_relief/7452/property_tax_reduction_allocations/510335. We cross-matched each town in our study with its corresponding district, then incorporated its average homestead relief amount into our tax burden formula for that town. Philadelphia homeowners did not qualify for homestead exemptions because the city's portion of state gambling revenues is used to reduce the wage tax rather than the property tax.

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Using all these figures—millages, assessment ratios, and property tax relief—we calculated the effective property tax rate for our family in each municipality using the following formula:

$$\begin{aligned} \text{Effective Property Tax Rate with Homestead Exemption} = \\ (\text{Effective Property Tax Rate} \times \text{Home Value}) - \frac{\text{Average Per Household Homestead Exemption Amount}}{\text{Home Value}} \end{aligned}$$

State Income Tax Rate in Pennsylvania

In 2000, Pennsylvania's state income tax rate was 2.8 percent. Effective 2004, the rate rose to 3.07 percent. Pennsylvania's income tax rate is the same for all income levels, and there were no income tax exemptions available to our hypothetical family. The state does not have a mortgage-interest deduction, and we did not apply any other deductions.

Local Income Tax Rates in Pennsylvania

Philadelphia, since 1939, has had the authority to levy a local tax on earnings and wages on both resident workers and nonresident workers. We used the 2000 and 2012 rates as published by the city at http://www.phila.gov/revenue/wage_tax.html.

Pennsylvania municipalities have the authority to levy a local earned-income tax of up to 1 percent on residents and nonresidents. Not all of them do so. School districts also have the authority to add an additional levy to the local earned-income tax. Together they make up the total resident income tax in each suburban municipality.

For each municipality in this study, we determined its total resident income tax rate—or whether it did not have such a tax—from Pennsylvania's Municipal Statistics website, found at <https://munstat-spa.dced.state.pa.us>. Municipalities also have the authority to levy a flat municipal services fee and other local fees, none of which we counted in our analysis.

Pennsylvania residents who work in Philadelphia and pay its nonresident wage tax are allowed to receive a tax credit against their home municipalities' local income taxes based on the full amount of their Philadelphia wage tax payment. In the periods studied, Philadelphia's nonresident wage tax rates were higher than the suburban income tax rates. As a result, our hypothetical commuting family did not pay any suburban local income taxes.

Given that Philadelphia is the focus of this study, our research did not calculate the tax burden on a suburban family whose adults commute to work in a neighboring suburb—as opposed to commuting to Philadelphia.

Sales Tax Rate in Pennsylvania

Pennsylvania's statewide sales tax rate has been 6 percent since 1968. Philadelphia, with state authorization, added 1 percentage point in 1991 to purchases within its borders, making its rate 7 percent. Starting in 2010, with state authorization, Philadelphia added another point, raising its sales tax rate to 8 percent.

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Explanation of Data Collection and Analysis: New Jersey

Property Tax Rates and Assessment Ratios

As in Pennsylvania, New Jersey localities levy taxes on a property's assessed value. Each year, the state publishes the general property tax rate and the effective property tax rate for each municipality. A municipality's effective tax rate is its general tax rate times its district ratio, similar to an assessment ratio, which measures the difference between the assessed and market value for comparison purposes. For our study, we used the New Jersey Department of Treasury's effective property tax rates for each municipality, found at <http://www.state.nj.us/treasury/taxation/lpt/taxrate.shtml>. We used the 2000 and 2011 tables, the last year available at time of this report.

Property Tax Relief (Homestead Benefit) in New Jersey

New Jersey provides property tax relief to homeowners who have an annual income of \$75,000 or less (before exemptions and deductions), making our hypothetical \$60,000-a-year family eligible. In 2000, our family (then at \$47,500) was not eligible for New Jersey's Homestead Benefit program, which had an income cap of \$40,000 that year.

For 2011, according to state regulations, our family's homestead benefit was a percentage of the taxes paid (up to \$10,000) on its property in 2006. For families who earn between \$50,000 and \$75,000, the homestead benefit calculation is based on a rate of 13.34 percent. To calculate our family's homestead benefit amount in 2011, we used the following formula as required by state law:

- Home value multiplied by its municipality's 2006 effective property tax rate, to derive its 2006 property tax bill;
- Its 2006 tax bill multiplied by 13.34 percent divided by 4 to derive its homestead benefit;
- Its homestead benefit subtracted from its 2011 property tax bill, to derive its property tax bill after property tax relief;
- Its after-relief property tax bill divided by home value, to derive its new effective tax rate.

State Income Tax in New Jersey

Unlike Pennsylvania, New Jersey does not allow local income taxes. And its state income tax rate schedule is progressive, with rates ranging from 1.4 percent to 8.97 percent for 2011, the last year available. Also unlike Pennsylvania, New Jersey offers a variety of deductions and exemptions, including a \$1,000 exemption for the taxpayer, \$1,000 exemption for a spouse, and \$1,500 exemption for each dependent child. Therefore, our married couple with two children qualified for \$5,000 in exemptions each year, meaning its taxable income was \$5,000 less in New Jersey than it was in Pennsylvania. We did not apply other deductions. New Jersey does not allow a mortgage-interest deduction.

For our family living in New Jersey, here's how we calculated its state income tax based on rate tables for 2011 (found at <http://www.state.nj.us/treasury/taxation/pdf/current/taxtable.pdf>) and 2000 (found at www.state.nj.us/treasury/taxation/pdf/other_forms/tgi-ee/2000/001040in.pdf):

2011 Household Income: \$60,000

Adjusted Gross Income After Exemptions: \$55,000

Income Tax Amount: \$928

Effective Tax Rate = \$928 / \$55,000 = 1.69 percent

2000 Household Income: \$47,500

Adjusted Gross Income After Exemptions: \$42,500

Income Tax Amount: \$674

Effective Tax Rate = \$674 / \$42,500= 1.59 percent

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New Jersey Commuters and the State Income Tax

New Jersey provides a dollar-for-dollar state income tax credit for residents who pay Philadelphia's nonresident wage tax. As a result of that credit, the median-income commuters in this study, all of whom had Philadelphia tax obligations higher than their state liabilities, paid no New Jersey income tax.

Sales Tax

In 2000, New Jersey's sales and use tax rate was 6 percent. On July 15, 2006, the rate increased to 7 percent.

Modifications to the 2000 Methodology

In 2001, Gary Ritter, Candice Hufford and David Thornburgh, in conjunction with the Pennsylvania Economy League, published their study of 2000 tax burdens using Inman's model. We based our methodology on that model and used many of the same assumptions. However, we changed some elements of the methodology to better correspond to new conditions in 2012 and then adjusted the figures published in 2001 to make them comparable to our 2012 figures. For this reason, our tax burden figures for 2000 differ somewhat from the earlier study's figures, although the underlying trends in city-suburb tax gaps are the same.

Our changes were:

- We raised the 2000 household income figure from \$40,000 to \$47,500 to be closer in line with the regional median household income as determined by the Census Bureau. We did this to be consistent with our income figure for 2012 from the Census Bureau.
- We set the total amount of family income spent on sales-taxable purchases at 30 percent instead of the 40 percent in the previous study, after consulting with tax experts and reviewing state tax data. However, we kept the earlier study's breakdowns of consumer spending patterns between suburbs and city.
- We changed the assessment ratio used in calculating Philadelphia's effective property tax rate to 22 percent in 2000, based on the calculations of both Strauss and Gillen, instead of 28.7 percent as determined by the State Tax Equalization Board at the time. We did this to have a consistent methodology for both time periods for Philadelphia. We continued to use the state board's CLRs for the Pennsylvania suburbs for both years.
- We set the family's home value at 3.1 times its household income for 2012 and 2.3 times its income for 2000. The earlier studies used a constant income-to-home value multiplier of 3.0 for each year studied. We made this adjustment to account for widely fluctuating market values over the long period studied.
- The earlier study included Mercer County, N.J., as part of the Philadelphia metropolitan region. This 2012 study does not include Mercer County, which is not part of the Census-defined Philadelphia metropolitan region.

A Narrowing Gap between Philadelphia and its Suburbs

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