
Financing Pennsylvania's Public Sector: Past as Prologue?

Prepared Testimony before the Pennsylvania House Select Subcommittee on
Tax Modernization and Reform

Room 205 Ryan Office Building

Harrisburg, Pennsylvania

November 15, 2017

9:00 AM

Robert P. Strauss¹

¹Professor of Economics and Public Policy, Heinz College, Carnegie Mellon; email: rpstrauss@gmail.com; web site: www.Andrew.cmu.edu/user/rs9f. Thanks to Mrs. Celeste Strauss and Ms. Katherine Lazarski for their assistance in preparing materials for this presentation. However, this presentation is the sole responsibility of Professor Strauss and does not reflect the views of Carnegie Mellon University or its Board of Trustees

CONTENTS

1. Introduction	3
1.1 Some Background Information	3
1.2 Goals of a Modern Tax System	4
1.3 Organization of Remarks.....	5
2. Six Points about Pennsylvania’s State and Local Tax System	5
2.1 The Constitutional Setting for Thinking about Pennsylvania’s State and Local Tax Structure	5
2.2 A Long View of Pennsylvania’s Fisc and State Tax Rates: 1880-2017	6
2.3 The Importance of Tax Expenditures in Pennsylvania’s State Tax Bases: 1994/5, 2015/6, 2021/2	8
2.4 State Spending on Pennsylvania’s Elderly and their Contribution to the Fisc	12
2.5 Pennsylvania’s Local Tax Structure: Reliance on the Real Estate Taxes 1977, 2000, 2015.....	14
2.6 Some Evidence on the Tax Equalization Board’s Efforts to Measure Property Sales-to- Assessed Value Ratios and the Quality of Local Assessment Practices	15
3.0 Summary: Past as Prologue?	17
4.0 Bibliography	19
Table 1: Total Tax Expenditures as Reported in the Executive Budgets, Selected Years.....	9
Table 2.1: Selected Tax Expenditures in Corporate Net Income Tax Base	10
Table 2. 2: Major Tax Expenditures in Sales and Use Tax Base for 2015/6 (\$millions)	11
Table 2.3: Major Tax Expenditures for Manufacturing Activity (\$ millions).....	12
Table 3: Actual and Projected State Spending on Elderly vs. State Tax Expenditures on Retirement Income from Strauss and Deng (2015)	14
Table 4: Importance of Local Real Estate Tax in Pennsylvania Local Governments: 1977 and 2000	15
Table 5: Statewide distribution of 2015 property sales prices across Pennsylvania.	16
Table 6: Pennsylvania statewide 2015 Coefficient of Dispersion under two different strategies for trimming outlying sales ratios	17
Table I. 1: Distribution of Approved 2015 Sales Prices by Tax Equalization Board by Pennsylvania County	20
Table I. 2: Pennsylvania Tax Equalization Board Common Level Ratios for 2015 Compared to Median Ratio of AV/P for Sales Prices over \$100	23
Table I. 3: Comparison of Common Level Ratio to Trimmed Median Sales Ratios and Coefficients of Dispersion	26

1. INTRODUCTION

Chairman Evankovich and members of the Select Subcommittee, I would like to thank you for the opportunity to testify this morning about the evolution of taxation in Pennsylvania. Also, I would like to thank the Pennsylvania House for the endorsement of my efforts four years ago to level the playing field between internet and Pennsylvania bricks and mortar vendors. Pennsylvania House Resolution 571 which passed the House Floor on December 13, 2013 by a vote of 189 Yeas, 10 Nays and 3 Present, and which urged the US Congress to take the same advice you took on the matter of internet taxation, was quite gratifying. I continue to hope that Congress will actually do something along the lines that happened here.

Before turning to my remarks, I would like to give you some context about what I bring to my observations this morning about the history of Pennsylvania's state and local taxes and our changing demography. The first context is my background, and the second context is the framework or set of goals that a tax system should strive to accomplish.

1.1 Some Background Information

I am a native of Ohio, educated in the public schools of suburban Cleveland, and the public Universities of Michigan (AB Economics, Ann Arbor) and Wisconsin (Phd Economics, Madison), and describe myself as somebody who understands current federal, state, and local tax law and why (and why not) elected officials might take it upon themselves to change current law. My wife, Celeste, and I have been in SW Pennsylvania for better than 35 years, and we are Steelers, Pirates, and Penguin fans, as are our three grown children.

With respect to my professional background, at the federal level, I have done such things, while at the US Treasury and Staff of the Joint Tax Committee of the US Congress, as the design and enactment of: federal block grants to all state and local governments in the US via General Revenue Sharing, the federal bail out of New York City, the refundable earned income tax credit, and the New Jobs Tax Credit which reduced the national unemployment rate then by about .8% at a cost/job of about \$17,000. At the state level, I have been directly involved in helping other states solve their fiscal problems. In West Virginia (1984-5) I designed and helped with the enactment of the elimination of their cascading gross receipts taxes; this past summer they re-enacted it, perhaps demonstrating that sometimes old, bad tax habits can be reborn out of fiscal necessity. In the State of Washington (1986/7), I planned and devised their migration from cascading gross receipts taxation to income taxes were the US Supreme Court to find Washington's gross receipts taxes entirely unconstitutional. Something like 60% of their biennial budget was at risk due to the constitutional challenge.²

Here in Pennsylvania, I have been involved in two major state tax reform efforts: the 1979-1981 Thornburgh/Cyert Pennsylvania Tax Commission (March, 1981).³ I directed the research and drafted the Final Report that was unanimously adopted by Commission members. In 1987, I was appointed to serve as a voting member of Governor Casey's Local Tax Reform Commission after both Governor Casey and Senator Jack Stauffer suffered heart attacks and consequently underwent emergency cardiac surgery during a rather

²Ultimately the US Supreme Court reached a narrow decision in favor of the plaintiffs, without commenting on the necessity for a refund. The Washington State legislature immediately amended their tax code to provide a constitutional system of tax and credits with the result that the slightly revised system of cascading gross receipts taxes was no longer discriminatory and therefore constitutional. Thus Washington remains a state without an individual or business income tax.

³ The 1981 *Report* can be found online at:
http://www.andrew.cmu.edu/user/rs9f/final_report_pa_tax_commission_March_1981.pdf

contentious budget. During that reform effort I not only was a voting member, but also directed the research and drafted the October, 1987 Report⁴ and minority and majority opinions.

In preparation of my remarks, I reread both reports, and think they contain lots of solid thinking about how to modernize and reform our state and local tax system. Moreover, upon reflection of what was suggested, and what has been changed over the years, there has been a fair bit of progress.

In addition to working on state level tax matters, I have also researched, and opined publicly and privately about the City of Pittsburgh's finances, including the matters of whether or not to sell or lease the assets of the Pittsburgh Parking Authority, whether or not to sell or lease the assets of the Pittsburgh Water and Sewer Authority, and periodically been asked to take a close look at Philadelphia's real property assessment system. I have been involved in several major studies for the Pennsylvania State Board of Education which focused on the importance of teacher content knowledge relative to student achievement,⁵ and most recently studied school safety and student learning outcomes across the state and in Philadelphia and Pittsburgh.⁶

1.2 Goals of a Modern Tax System

The *1981 Final Report of the Pennsylvania Tax Commission* recommended by consensus that Pennsylvania's system of state and local taxation system seek to achieve a set of six goals. I repeat them below as the multidimensional lens through which one might think about our historical tax system. The Goals and Criteria for Pennsylvania's Tax System were stated as follows:⁷

- A. Simplicity: taxes should be readily understood by taxpayers and tax administrators.
- B. Certainty: taxes should have known and predictable liabilities over time, and not be the subject of constant debate and appeal by taxpayers and administrators.
- C. Equity: taxes should treat taxpayers in the same economic circumstance in the same way, and provide that taxpayers with differing abilities to pay should pay different amounts consistent with the distributional objectives of the state.
- D. Economy of Administration: taxes should be inexpensive to administer. It is often said that any tax which costs more than 2% of revenues raised is unduly expensive to administer for taxpayers and tax collectors.
- E. Economic Neutrality: taxes should not unintentionally alter consumer, worker, or producer choices. To the extent possible, social and economic policy objectives should be met through explicit expenditure policies rather than through the use of tax expenditures. When tax expenditures are socially desirable, they should be justified in relation to their benefits and costs, and periodically reviewed and evaluated.
- F. Revenue Adequacy: the overall tax system should provide reasonable growth in revenues so that a constant set of tax rates are adequate to finance expenditure needs of state and local government.

In addition to these six goals, a tax must be justified by either one of two criteria: the benefit principle of taxation or the ability to pay principle of taxation. Under the former, taxes are used as pseudo prices to reflect what a particular class of taxpayers gets in the way of public services. The property tax is often pointed to as a benefit tax

⁴ The *Final Report and Recommendations of the Local Tax Reform Commission* (October 30, 1987) can be found online at: http://www.andrew.cmu.edu/user/rs9f/www/casey_1987.pdf

⁵ My personal web page at Carnegie Mellon, www.Andrew.cmu.edu/user/rs9f/, is a full disclosure of what I have done in terms scholarship, public service, and my opinions over the years. Appendix 1 of this testimony contains a bibliography of things I have researched with Pennsylvania data as well as their the hyperlinks.

⁶ When one looks at school safety incidents across the Commonwealth, and ignores whether or not an arrest was made in conjunction with a school safety incident, the pattern of reported violence, especially student assaults on staff, is quite troubling. See: http://www.andrew.cmu.edu/user/rs9f/rpstrauss_school_safety_3_1_2016.pdf

⁷ *Final Report of the Pennsylvania Tax Commission* (Harrisburg, PA, March, 1981), page 1.

when used to support the costs of municipal services. An income or broadly based consumption tax is usually pointed to as an ability to pay tax, and thought to most properly finance redistribution through the public budget.

1.3 Organization of Remarks

My observations about the history of Pennsylvania's state and local tax structure are in Section 2 below. They provide six points about Pennsylvania's state and local tax structure. In Section 3 I summarize what I think are the most salient points, and Section 4 contains a bibliography which reports references used here along with many of my papers over the years that have focused on various aspects of Pennsylvania's state and local taxes. Appendix 1 contains more detailed tables that substantiate statements in the body of my testimony.

Given the relatively short period of time to prepare this testimony, I have not been able to place the evolution of Pennsylvania's state and local tax structure and its demography in the larger, inter-state context of the larger US federal system as much as I think this matter deserves. However, I do think it is obvious that Pennsylvania's role in the US, at least reflected by our population, is not as dominant today as in the past.

Allow me to briefly recollect a few numbers about our population. In 1790, Pennsylvania's population was 11% of the US population, while by 1980 it was only 5%. By 2016 it fell further to 4% of the US population. From 2000 to 2016, our state population only grew from 12.2 million to 12.7 million and our share of the US population fell from 4.1% to 4.0%. These demographic facts suggest that, in working through practical tax modernization and reform ideas, more attention rather than less will be required to think through what competing states are doing whose growing populations are attracted by more enticing economic opportunities. This necessarily raises questions of expenditure design and efficacy which is beyond the scope of this morning's hearing, but pertinent ultimately to understanding the dynamics of our economic base.

Another way to think about this is to remember that the first reason we tax ourselves is to support the costs of public services. As Pennsylvania's economy changes and becomes more competitive because of regional, national, and international pressures, our businesses and families increasingly find themselves as price or wage takers rather than price and wage setters with the result that they become more sensitive about both the level and nature of taxes they pay, but also more sensitive to the value proposition between taxes paid and the quantity and quality of state and local services provided

2. SIX POINTS ABOUT PENNSYLVANIA'S STATE AND LOCAL TAX SYSTEM

Below, I make six points about our system of state and local taxes. First, I remind the reader about the implications of the constitutional setting and especially of the Uniformity Clause, Second, I review the evolution of tax rates for the major state level tax bases over the period 1880-2017. Third, I review the tax expenditures in our state budget in order to get an idea of what is happening to our overall state tax base. Fourth, I present earlier research findings about the tax expenditures for the elderly and their juxtaposition against spending for the elderly from the General Fund and off-budget. Fifth, I examine over time the role of the real estate tax in the composition of our local tax structure, and, sixth, I review, through new empirical research, the nature and quality of the local real estate assessment process.

2.1 The Constitutional Setting for Thinking about Pennsylvania's State and Local Tax Structure

Because of the 19th century Uniformity Clause that remains unchanged in Pennsylvania's constitutions⁸, Pennsylvania's state and local tax receipts can only grow proportionately with the size of any tax base. There have

⁸ Pennsylvania's uniformity clause dates back to Article IX, Section 1 of the Pennsylvania Constitution of 1874. Article VIII Section 1 of the Pennsylvania's current constitution, which repeats the earlier constitutional provision, states: "All taxes shall

been well over a dozen failed attempts to change this part of the Pennsylvania Constitution.⁹ Upon reflection, I have grown to respect and endorse the current Uniformity Clause, and suggest you do not try to change it in the name of modernization or reform. During periods of economic growth and prosperity, a progressive rate schedule applied to the personal income tax base can generate revenues faster than the growth in overall personal income. This allows the spending side of the state budget to expand and be adequately financed. However, during periods of slower than average economic growth or actual economic recession, both individual and business taxpayers fall into lower tax rate brackets, and revenues decline faster than the personal or business income tax bases. It is true that with foresight, one can create adequate reserves to address these downside risks; however, should reserves not be adequately provided for, there is the distinct, and very uncomfortable possibility that reserves will be exhausted, and monies may not be available to pay for promised state services. Whether or not capital markets will enable Pennsylvania to borrow the difference then becomes a crucial matter.

The second aspect of the constitutional setting that I would like to call your attention to is the fact that Pennsylvania is self-proclaimed as a Commonwealth, and this has been viewed by many as an impediment to the General Assembly telling local governments (counties, school districts, municipalities, and public authorities) through statutes what to do, and/or how they may conduct themselves. While I have heard this argument over the decades, I must confess that, since local governments are the constitutional and/or statutory creations of the General Assembly, the argument does not (at least to me) seem to be that compelling. After all, were local receipt of monies or taxing powers distributed by the General Assembly, conditioned upon local agreement that the associated reporting, limitations, and conditions on the use of received monies, were contractual in nature, it would seem to me that local arguments about the constitutionality of these reporting, limitations and conditions of use would be moot. Certainly the US Congress has successfully engaged in transactional federalism with both states and localities for many, many years, without constitutional challenges, and I do not see the counter-part mechanism of encouraging local governments, even in a Commonwealth, to get in line to be particular difficult as a constitutional matter. It is imaginable that your constitutional and statutory local government creations may not like being offered bargains or mandates of various sorts, and it is imaginable that they will complain, bicker and perhaps even bicker about terms and conditions. But these become political rather than constitutional matters.

2.2 A Long View of Pennsylvania's Fisc and State Tax Rates: 1880-2017

Historically, to meet spending needs, new tax bases have been established, and similarly, tax rates have gone up over time and occasionally gone down during better economic times. Pennsylvania had faculty (1782) and then occupation taxes measured by income in the 18th Century, and as late as 1951 enabled local governments to apply occupation taxes measured by the presumed value of an occupation as determined by a local assessor. Between 1830 and 1840, the cost of state government in Pennsylvania rose from \$6.3 million to \$7.3 million, and in August, 1843, Pennsylvania defaulted on its bonds after delaying payments twice, and was finally forced to pay its bonds in script. During this period, 2/3 of the outstanding indebtedness of \$36 million was held by foreign (overseas) investors. In 1841, a 2% tax on salaries was enacted along with a 1% tax rate on profits from various professions and trades. The 1841 provisions included a flat tax exemption and withholding for state employees.¹⁰

Both the Union and Confederate governments imposed progressive rate personal income taxes as did a number of states. In 1860, Pennsylvania's state budget was \$3.6 million, and the Commonwealth floated a \$3 million bond for its costs of the Civil War. In 1864, a corporate tax was imposed and devoted to paying off that bond. The basis of the tax was a tax on freight whose rate of tax varied from \$.02 to \$.05/ton of freight. Such taxes on transportation would be later hotly contested before the US Supreme Court. Pennsylvania's Civil War corporate tax provisions

be uniform, upon the same class of subjects, within the territorial limits of the authority levying the tax, and shall be levied and collected under general laws. “

⁹ See McKenna (1960) for a rather interesting review of the evolution of Pennsylvania's faculty, occupation and income taxes.

¹⁰ McKenna (1960), pp. 292-293.

also imposed a 3% tax on corporate and unincorporated businesses with a presence in Pennsylvania. Pennsylvania also had a corporate net income tax in 1864.

By 1874, the Pennsylvania corporate tax was repealed as it had paid off the \$3 million bond floated in 1860. However, the tax on business wealth as measured by the balance sheet capitalization of corporations was an early and continuing feature of Pennsylvania finance.

Below, three graphs display by year the nominal tax rates of major state level taxes: Figure 1: 1880-1925, Figure 2: 1926-1971, and Figure 3: 1972-2017. In the first period, 1880-1925, Pennsylvania utilized the Capital Stock and Franchise tax at an initial rate of 3 mils of taxable value, and then raised it to 5 mils in 1891; the increase occurred during the national recession of 1889-1891. During the national recession of 1923/4, Pennsylvania enacted a temporary, emergency Corporate Profits tax in 1923 at a rate of .5% (not shown on Figure 2); it expired in 1925. During the Great Depression, the Capital Stock and Franchise tax rate remained at 5 mils; however, in 1935, revenue needs resulted in the re-imposition of a corporate profits tax in 1935 at a rate of 6% that increased later to 7% in 1937, and in 1943 to 4%. Pennsylvania also enacted a graduated or progressive rate personal income tax in the same emergency legislation of 1935; however, it was found by the Supreme Court of Pennsylvania to be unconstitutional in *Kelly v. Kalonder* later in 1935.

In 1961, the corporate net income tax rate was raised from 4% to 5%. It is clear that during periods of economic downturns, the corporate net income tax rate was adjusted to meet revenue exigencies. In 1972, the corporate net income tax rate was raised to over 12%, and has hovered at 9.99% in more recent times. In 1972, after another adverse ruling by the Pennsylvania Supreme Court on the issue of a graduated, personal income tax, a flat rate personal income tax became a permanent feature of Pennsylvania’s state tax structure. It was initially enacted at 2%, with some increases and decreases during the business cycle, and has remained at 3.07% for a number of years. Pennsylvania’s Sales Tax, enacted initially to fund public education, has remained at 6% since the 1960’s.

Figures 1-3 show a pattern of adoption of new tax bases, and then raising their tax rates, largely during periods of revenue necessity, and sometimes tax rate reductions during periods of economic prosperity. Some may characterize the targeting of specific kinds of economic activity during periods of revenue exigencies as a kind of “searchlight effect”; it appears that in Pennsylvania, the searchlight has focused more on income taxes than other kinds of tax bases. Importantly, Pennsylvania decided and accomplished the systematic reduction of the Capital Stock and Franchise Tax from a peak rate in 1991 of over 12 mils to its elimination in 2016. Similarly, as we shall see below, Pennsylvania has been able to eliminate some of the worst local taxes (taxes on local gross receipts, occupations, and the personal property tax) by freezing adoption, freezing the tax rate, and/or limiting maximum payment amounts, or outright elimination.

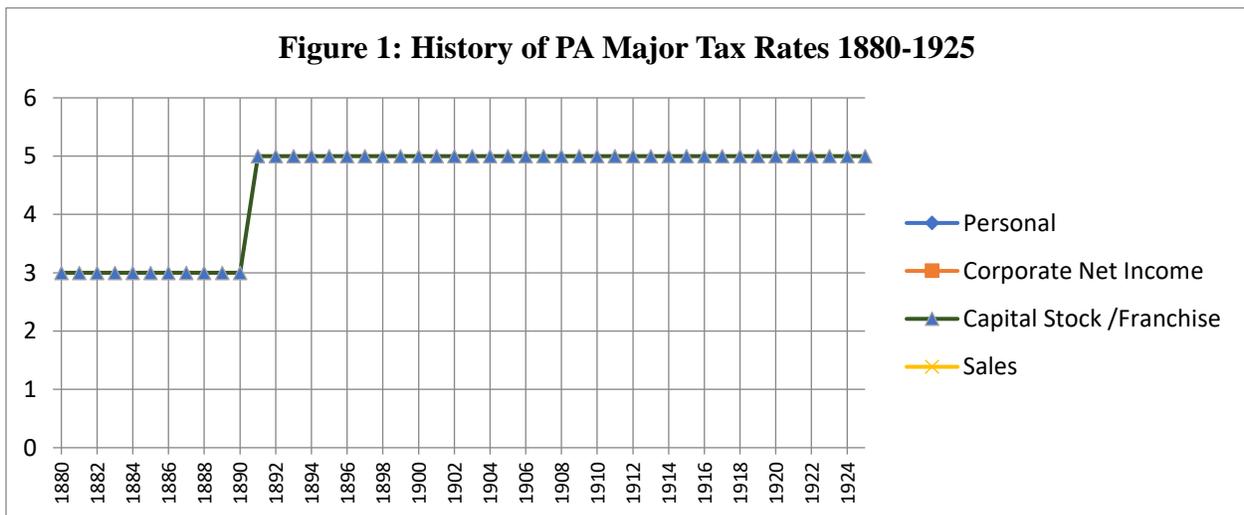


Figure 2: History of PA Major Tax Rates 1926-1971

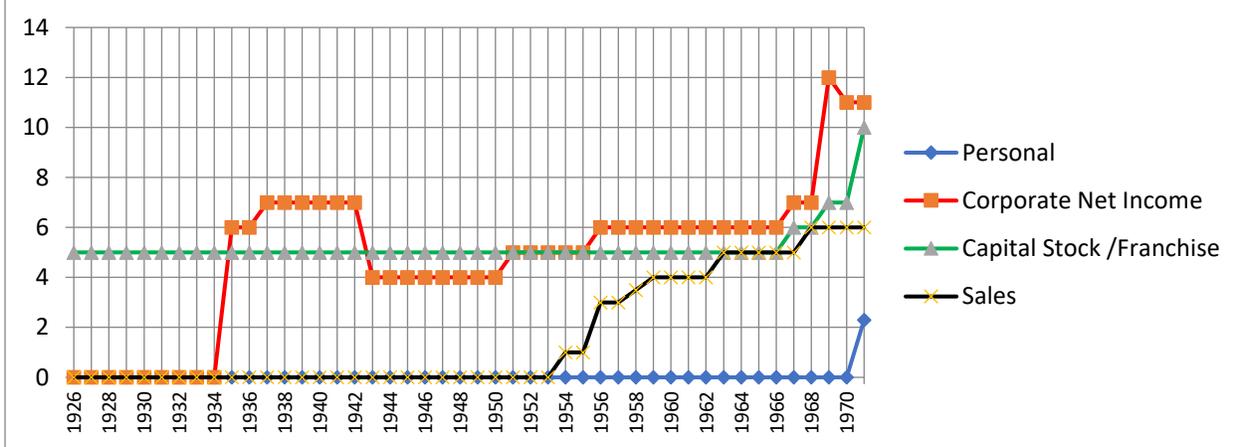
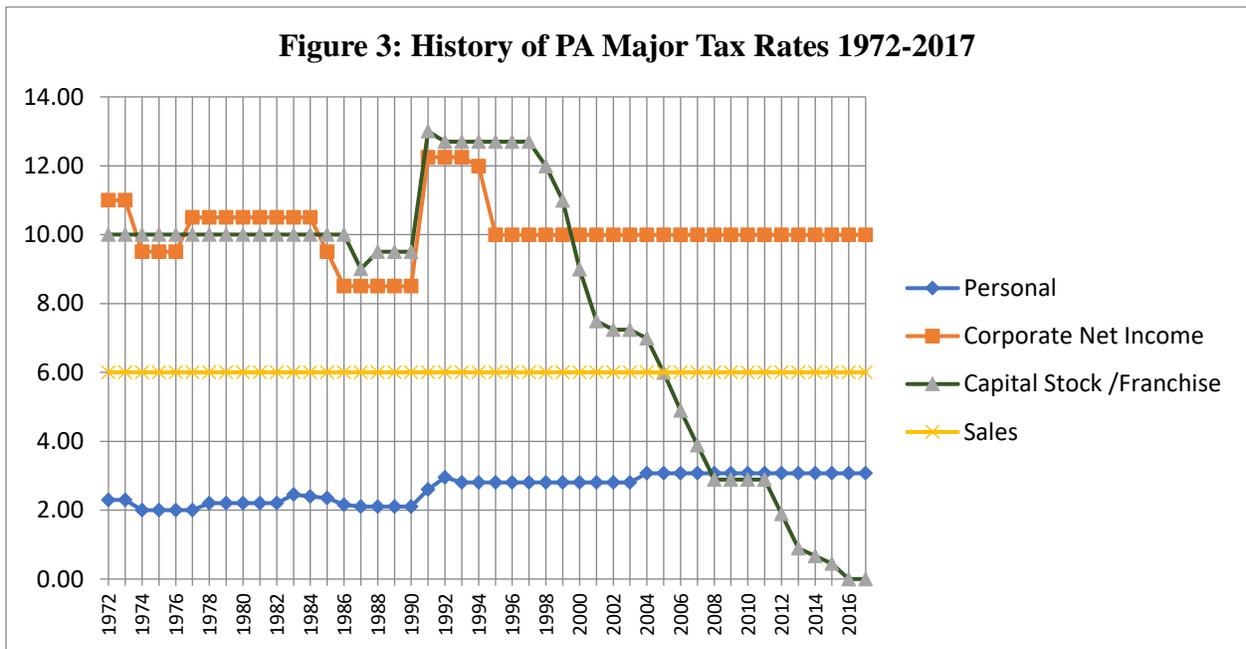


Figure 3: History of PA Major Tax Rates 1972-2017



2.3 The Importance of Tax Expenditures in Pennsylvania’s State Tax Bases: 1994/5, 2015/6, 2021/2

Each year, the executive submittal of the governor’s budget contains an estimate of tax expenditures in the General Fund, and other funds such as the Motor License Fund. A tax expenditure is defined as “...indirect expenditures that occur through special treatment within the tax structure.” These are composed of “Various tax credits, deductions, exemptions, and exclusions ...which result in reductions in revenues that would otherwise be received by the Commonwealth at current tax rates. In 1992, estimates of tax expenditures were required to be revised and updated every two years. The presentation of tax expenditures in the Executive Budget states that the

estimates do not reflect possible behavioral reactions to the elimination of any or many, related tax expenditures, and that the estimates are not always based on tax return information, but reflect use of other, available data. Finally, the reader is reminded in the introduction to the Tax Expenditures in the budget that they should not be viewed necessarily as being strictly additive. Nonetheless, the Tax Expenditures reported in the state budget do indicate where special tax provisions exist, and what their individual likely amounts are.

To get some idea of what has been happening to the tax bases of Pennsylvania’s state tax structure, as a parallel examination to the earlier discussion of the evolution of state tax rates, I examined the approximately 80 pages of reported tax expenditures for 3 years: 1994/5 as reported in the 1995/6 Executive Budget, and 2015/6 as reported in the 2017/8 Executive Budget, and projected tax expenditures for 2021/2. My first interest was in the general overall level that the various credits, exemptions, deductions and exclusions amount to across the major state level taxes¹¹. What we see is that overall tax expenditures, with the above caveats in mind, have grown numerically over time, and as a proportion of actual or projected amounts in the General Fund and Motor License Fund, they have become a larger proportion.

Even if the estimates in Table 1 double count the “true” tax expenditures by a factor of 3, e.g the amounts should be divided by 3 to get the proper total, their level and importance when juxtaposed to the amounts appropriated out of the General Fund and Motor License Fund are striking and large. What this suggests to me is that when thinking about how to modernize and reform our state and local tax system, considerable focus should be placed on what the tax base is defined to be, and time and effort should be spent revisiting the justifications for particular tax exemptions, exclusions, credits, deductions etc.

Table 1: Total Tax Expenditures as Reported in the Executive Budgets, Selected Years

Year	Amount of Tax Expenditure in current Billions	As % of General Fund
1994/5	\$20.70 B	107%
2015/6	\$33.60 B	105%
2021/2	\$54.30 B	134%

Source: Author’s tabulations of Section D Tax Expenditures reported in Executive Budget of Commonwealth of Pennsylvania for 1994/5,2015/6 and 2021/2 (projected).

Having put together the summary table above from the detailed tables, it may be of interest to display major tax expenditures for major state taxes for 2015/6 and 2021/2. Table 2 below shows some major tax expenditures across major state taxes. Note that each panel of Table 2 is sorted from largest to smallest tax expenditure in 2015/6. Table 2.1 indicates that total tax expenditures for the Corporate Net Income (CNI) tax were about \$2.5 billion in 2015/6 and 2021/2. The largest tax expenditure in the CNI, around \$800 million/year, was due to allowing small corporations in Pennsylvania to be treated as Subchapter S corporations per the Internal Revenue Code. Whether or not this is a desired tax policy design, we see that over \$800 million was foregone by treating small corporations differently than large ones. The second largest CNI tax expenditure, allowing the use of just the sales factor apportionment formula, was about \$600 million in revenues foregone in 2015/6. Allowing businesses to be treated for tax purposes as Limited Liability Corporations rather than regular corporations and allowing Net Operating Carry-back, Carry-forward, was about a \$.5 billion/year in foregone taxes to the General Fund.

¹¹ More specifically, I only accumulated tax expenditures which were more than \$1 million in any of the years examined.

Table 2.1: Selected Tax Expenditures in Corporate Net Income Tax Base

	2015/6	2021/2
Total Tax Expenditures for CNI (millions)	\$ 2,514.8	\$ 2,521.6
PENNSYLVANIA S CORPORATIONS	\$ 845.2	\$ 827.9
SALES FACTOR APPORTIONMENT WEIGHT	\$ 663.1	\$ 590.6
LIMITED LIABILITY COMPANIES (LLCs)	\$ 553.7	\$ 554.2
NET OPERATING LOSS CARRYFORWARD	\$ 389.5	\$ 479.3
NONPROFIT CORPORATIONS	\$ 60.5	\$ 66.4
FICA TAX ON TIPS	\$ 2.8	\$ 3.2

Table 2.2 indicates that total tax expenditures in Pennsylvania's Sales and use Tax were \$3.6 billion in 2015/6. Under current sales and use tax law, exempting certain items of food reduced sales and use tax collections entailed revenue foregone of about \$1.4 billion in 2015/6, while exempting prescription drugs and orthopedic equipment reduced revenues by \$840 million/year, and exempting some clothing and footwear \$783 millions/year. There is some evidence that taxing remaining clothing and footwear would actually increase the progression of the sales and use tax.

Mikesell (2017) reports that, on a standardized basis, Pennsylvania's Per-capita Retails Sales Tax Collections per 1% of statutory rate was \$133.26 in FY 2016 compared to a national mean of \$176.14, and compared to a national median of \$160.99. The minimum among states levying a sales and use tax was \$110 per-capita. Thus, among states levying a sales and use tax, Pennsylvania has one of the narrowest sales and use tax bases.

Table 2. 2: Major Tax Expenditures in Sales and Use Tax Base for 2015/6 (\$millions)

	2015/6	2021/2
Total Tax Expenditures for Sales and Use Tax (millions)	\$ 3,580.0	\$ 4,574.5
FOOD Exemption	\$1,410.1	\$1,643.6
PRESCRIPTION DRUGS AND ORTHOPEDIC EQUIPMENT	\$ 842.4	\$1,313.6
CLOTHING AND FOOTWEAR	\$783.7	\$ 894.9
LIQUOR OR MALT BEVERAGE PURCHASED FROM RETAIL	\$141.7	\$192.6
NON-PRESCRIPTION DRUGS	\$116.0	\$183.3
GRATUITIES	\$97.4	\$ 127.3
CANDY AND GUM	\$65.6	\$76.4
PERSONAL HYGIENE PRODUCTS	\$48.4	\$58.4
CASKETS AND BURIAL VAULTS	\$19.5	\$25.0
NEWSPAPERS	\$16.3	\$15.5
TEXTBOOKS	\$12.3	\$11.4
CHARGES FOR RETURNABLE CONTAINERS	\$10.6	\$13.2
FOOD STAMP PURCHASES	\$8.2	\$10.8
MAGAZINES	\$6.3	\$6.7
Flags	\$1.5	\$1.8

Pennsylvania's manufacturing heritage is reflected in the favorable tax treatment of certain manufacturing activities. Table 2.3 indicates that \$1.4 billion in tax revenues was foregone by the manufacturing exemption.

Table 2.3: Major Tax Expenditures for Manufacturing Activity (\$ millions)

	2015/6	2021/2
Total Tax Expenditures for Production Activities (millions)	\$1,388.5	\$1,638.3
MANUFACTURING EXEMPTION (Manufacture and Processing)	\$1,206.1	\$1,430.0
MANUFACTURING EXEMPTION (Public Utility)	\$96.4	\$102.8
CONTRACT FARMING	\$47.9	\$62.3
MANUFACTURING EXEMPTION (Agriculture)	\$35.9	\$40.6
MANUFACTURING EXEMPTION (Foundations for Machinery and Equipment)	\$2.2	\$2.6

The largest tax expenditure in the personal income tax in 2015/6 was due to the exclusion of retirement income of nearly \$3.0 billion in 2015/6; this is projected by the Department of Revenue to grow to \$4.3 billion in 2021/2. This increase clearly reflects the changing demographics of the state.

Table 2. 4: Major Tax Expenditures in Personal Income Tax (\$millions)

	2015-16	2021-22
<i>Total Tax Expenditures for PERSONAL INCOME TAX</i>	\$ 8,491.6	\$ 11,305.2
RETIREMENT INCOME	\$ 2,983.6	\$ 4,341.1
BUSINESS INCOME DEDUCTIONS Other	\$ 1,979.0	\$ 2,566.3
EMPLOYEE BENEFIT PROGRAM EMPLOYER CONTRIBUTIONS	\$ 1,240.3	\$ 1,566.7
RETIREMENT CONTRIBUTIONS BY EMPLOYERS	\$ 1,106.4	\$ 1,448.8
BUSINESS INCOME DEDUCTIONS Depreciation	\$ 157.8	\$ 204.6
SALE OF A PRINCIPAL RESIDENCE	\$ 151.7	\$ 174.2
SCHOLARSHIPS, GRANTS, FELLOWSHIPS, AND STIPENDS	\$ 150.8	\$ 197.4
LIFE INSURANCE PROCEEDS	\$ 141.2	\$ 166.5
COMPENSATION FOR MILITARY SERVICE	\$ 129.4	\$ 150.1
CAFETERIA PLANS	\$ 93.7	\$ 122.7
WORKERS' COMPENSATION	\$ 92.5	\$ 99.0
REIMBURSEMENTS FOR ACTUAL EXPENSES	\$ 74.3	\$ 72.2
UNREIMBURSED EXPENSES	\$ 74.3	\$ 72.2
UNEMPLOYMENT AND SUPPLEMENTAL UNEMPLOYMENT COM	\$ 65.0	\$ 62.0
NONQUALIFIED DEFERRED COMPENSATION	\$ 32.7	\$ 39.1
HEALTH SAVINGS ACCOUNTS/ARCHER MEDICAL SAVINGS AC	\$ 13.2	\$ 16.6
PUBLIC ASSISTANCE	\$ 5.7	\$ 5.7

2.4 State Spending on Pennsylvania's Elderly and their Contribution to the Fisc

State spending pressures reflect differential cost pressures. For example, health care inflation has historically been faster than wage and salary or capital income growth. Thus, if our population requires relatively greater outlays for health care, which reflects the changing composition of our population (e.g. we are getting older with a stagnant

population), this will mean that revenues, at current tax rates and tax base definitions, probably will be unable to keep up with spending pressures. My guess is that this is something the General Assembly is already aware of.

In 2000, 15.8% of Pennsylvania's population were over age 65, whereas in 2030 2.9 million or 22.8% are projected by the US Bureau of the Census¹² to be 65 years of age or older.

In 2014 I developed and gave a paper with a former Heinz student, Ms. Yunni Deng, for the Lehigh Symposium on The Crisis in State and Local Government Finance. Table 3 (below) from the published version of the paper¹³ shows the actual 2013 and predicted 2025 spending on the elderly from the state's budget along with the tax expenditure due to the exclusion of private and public retirement income from the state personal income tax base as well as its exclusion from the local earned income tax base. It should be noted that data on Pennsylvania's spending on the elderly for the elderly is rather difficult to obtain; however, state budget experts were kind enough to provide their estimates from the General Fund and elsewhere about how such services are financed.

What we see in Table 3 below is that seniors received between \$4.2 and \$4.7 billion in benefits out of various state funds in 2013, and, were seniors' retirement income to have been taxed in 2013, another \$2.5 billion would have been raised. Another way to think about this is to see that other forms of state taxes had to pick up \$2.5B/\$4.5B or about ½ of spending on the elderly that they, as a group, were not contributing to. By 2025, we see that, due to the demographic changes likely to occur (we are getting considerably older, both in total and as a proportion of total population) that spending on seniors will rise to between \$4.2 to \$4.7 billion, and foregone taxes on retirement income will be between \$5.4 and \$7.1 billion.¹⁴

Pennsylvania, along with Mississippi and New Hampshire, entirely excludes private retirement income from its individual income tax base and also entirely excludes public retirement income along with 6 other states. Of the 43 states and the District of Columbia with some form of personal income taxation, 16 states entirely tax private retirement income and 11 entirely tax state and local retirement income while 19 states partially tax private retirement income and 20 partially tax state and local retirement income. Exclusion of employer pension contributions and exclusion of actual employee receipt of pension income is, in effect, a life-time tax expenditure.

¹² This projection is based on the Census Bureau's 2025 project made in 2014, and was more pessimistic than that used by Pennsylvania's Independent Fiscal Office in 2013. Pennsylvania's estimated 2017 population from the American Community Survey showed a slight, *absolute* decline in population compared to the prior year. This decline is likely within the standard error of estimate from the sample used by Census to estimate the population. Given the impact of the retirement population on health and long-term care, there is merit in the General Assembly reviewing and making public the range of annual estimates of the elderly population and actual elderly enrollees in various publicly supported programs.

¹³ See Strauss and Deng (2015), online at: http://www.andrew.cmu.edu/user/rs9f/final_rpstrauss_ydeng_state_tax_notes_1_19_2015.pdf .

¹⁴ Periodically, several of my older colleagues complain to me about the possibility of the Commonwealth imposing income taxes on their retirement incomes. Several observations are in order. First, there is no constitutional impediment to this being done, as the Pennsylvania Constitution allows for exemption or special classification of individuals by age and poverty. Admittedly, imposing a 3.07% tax on existing retirees' retirement income might be an unpleasant surprise and conflict with financial planning undertaken while earlier working. On the other hand, one can imagine phasing in such taxation so that in the first year there would be a 95% exclusion of retirement income, in the second year impose a 90% exclusion of retirement income from the PIT tax with the percentage dropping to an ultimate level of 50%. Alternatively, one might fashion an elderly exemption amount in the Personal Income Tax that would ensure that only those well off would be subject to income taxation.

Table 3: Actual and Projected State Spending on Elderly vs. State Tax Expenditures on Retirement Income from Strauss and Deng (2015)

Year	Service Outlays For Elderly from General Fund and Off Budget	Tax Expenditures for Elderly Retirement Income (Private and Public) (\$B)
2013 (actual)	\$4.2B to \$4.7B	\$2.5B
2025 (projected)	\$5.8B to \$7.8B	\$5.4B to \$7.1B

2.5 Pennsylvania’s Local Tax Structure: Reliance on the Real Estate Taxes 1977-2015

Pennsylvania’s financing of school districts, county governments, and plethora of municipal forms of local, general governments continues to be dependent on transfers and fees of various sorts. Table 4 indicates reliance on local real estate taxes appears to be declining for most municipal forms between 2000 and 2015. For example, county governments relied on local taxes for 35% of revenues in 1977, and only 25% in 2000. On the other hand, school districts dependence on the local property tax rose from 76.4% of all local taxes in 1977 to 84.7% of all local taxes in 2000, and then down to 80.5% in 2015/6. (See Table 4 below.)

Over time, various aspects of local taxing authority have been rationalized. The City of Pittsburgh was required to eliminate its mercantile and business privilege tax after 2010 in exchange for a payroll preparation tax and to reduce the parking tax rate. Also, Pittsburgh’s amusement tax was reduced from 10% to 5% when the county sales tax was enacted in 1993. The 5% rate is consistent with other municipalities that levy the tax. School districts are prohibited from levying the tax if it was not in place as of 1997. School districts that levy the tax may not increase the rate and must reduce the rate should collections exceed what was collected in 1996/97 school year.

Some progress in the taxation of commuters occurred when the occupation privilege tax that increased from \$10/year to \$52/year with school districts keeping \$5 and municipalities the remaining \$47 paid by individuals to the municipality where they work effective in 2009. There is a \$12,000 low income exemption for people who earn below that amount who do not have to pay the tax. The definition of compensation has been expanded to be consistent with the PA Department of Revenue definition effective in 2003 except that investment income is still not taxed at the local level.

Act 24 of 2001 dealing with the occupational assessment tax in which school districts of the second through fourth class may by referendum eliminate the tax in favor of a higher local earned income tax to replace revenue lost from its elimination. In addition, the mercantile/business privilege tax is frozen as a gross receipts tax from the failed local tax reform referendum of 1989 that no local government or school district may levy the tax after November 30, 1988 if it was not already in place. A flat rate tax maybe levied.

Philadelphia’s tax structure and problems are different than the rest of the state, and trying to fix the self-inflicted tax problems resulting from a very high commuter tax rate from Harrisburg is not an easy matter. As is evident from Table 4, Philadelphia has chosen not to rely on the local real estate tax compared to all of the rest of the local governments in Pennsylvania, and Philadelphia’s reliance on the local property tax, compared to other revenue sources, has declined over time. Philadelphia has accomplished some reforms by itself; in July, 2016, it reduced its tax on commuters earnings to 3.4741%, and lowered its resident tax on earned income to 3.9004%. In the late 1980’s the tax rate on commuter earnings was 4.3125% and the tax rate on resident earnings was 4.96%. Recently, Philadelphia went through a major revaluation of its property tax base. While there was considerable complaining in Philadelphia about the property reappraisal, there were not the tax riots of the 1790’s when 500 very angry farmers/distillers in

South West Pennsylvania stormed the residence of the federal tax collector over the newly enacted federal excise on distilled spirits. The Whiskey Rebellion of South West Pennsylvania in 1794 included the tar and feathering of federal tax collector General John Neville. President Washington personally led 13,000 troops to quell the rebellion.

Table 4: Importance of Local Real Estate Tax in Pennsylvania Local Governments: 1977, 2000 and 2015

Year	(1)	(2)	(3)	(4)	(5)	(6)
	1977 1/	2000 2/	2015 3/	1977 1/	2000 /2	2015/6 3/
Local Jurisdiction	All Local Taxes as % of Total Revenues	All Local Taxes as % of Total Revenues	All Local Taxes as % of Total Revenues	Real Estate Taxes as % of All Local Taxes	Real Estate Taxes as % of All Local Taxes	Real Estate Taxes as % of All Local Taxes
All Public School Districts (excludes Intermediate Units, Charters, Career and Technical Schools none of which has taxing authority)	51.9%	54.9%	56.6%	76.4%	84.7%	80.5%
County Governments	35.8%	25.3%	40.2%	93.4%	96.7%	84.9%
All Municipalities (excluding Philadelphia and Pittsburgh)	46.6%	38.3%	41.5%	54.2%	44.9%	46.6%
Philadelphia	48.9%	41.4%	41.7%	26.0%	16.5%	15.8%
Pittsburgh	51.8%	52.8%	62.4%	51.4%	44.5%	32.1%
2A and 3rd Class Cities	37.5%	32.4%	33.2%	59.6%	58.5%	53.2%
Boroughs	39.5%	33.0%	35.7%	55.3%	49.9%	55.7%
1st Class Townships	56.4%	43.3%	47.1%	67.1%	52.2%	53.1%
2nd Class Townships	48.3%	39.7%	48.1%	39.6%	31.9%	35.6%

Sources: 1/ Final Report of the Pennsylvania Tax Commission, March, 1981, Tables II.10, II.11,II.12

2/ Pennsylvania Department of Community Affairs, *Taxation Manual*, 8th Edition, 2004, page 3.

3/Author’s tabulations of DCED and PDE online, electronic databases for 2015/6

2.6 Some Evidence on the Tax Equalization Board’s Efforts to Measure Assessed Value to Sales Price Ratios (AV/P) and the Quality of Local Assessment Practices

As is well known, there are four allowable forms of property assessment in Pennsylvania: the sales approach, the original cost less depreciation approach, the income capitalization approach, and the base-year approach. The use of the base-year system of property assessment means that new construction and properties that transact run the risk of “welcome neighbor” or spot assessments.¹⁵ Similarly, the ability of local jurisdictions to appeal county assessments means that spot assessments can be a recurring problem for new purchasers of real estate. Jurisdictions in base-year assessing counties are forced to raise their millage rates and/or try to get greater state funding. Raising local millage may run afoul of state limitations on local millage, and voting to raise millage rates can be very politically difficult to achieve.

Under current Pennsylvania real estate assessment law, the Pennsylvania Tax Equalization Board is tasked with the responsibility of measuring and reporting the level of assessment in each county and the City of Philadelphia. Each county and the City of Philadelphia is required to provide to TED data on arms length sales prices by type of

¹⁵ While Pennsylvania assessment law precludes spot assessment, and there are court decisions upholding this prohibition, there is widespread complaint about its continued practice.

property. Data on these sales prices was obtained from TED, and tabulated. The information that TED develops by county has historically been used to administer the state school aid formula, and continues to be used in the appeals of assessments by property owners, and also for appeals by local governments. Table 5 indicates that for 2015, TED received information on 321,190 transactions which were accepted as arms length or “approved” sales prices for TED use in measuring the level of assessment in each county. Statewide, only 76% of the sales prices were over \$100. In 14 of Pennsylvania’s 67 counties more than 40% or more of data used by TED to compute the Common Level Ratio were composed of sales prices of \$0.0 or \$1.0.¹⁶

Table 5: Statewide distribution of 2015 property sales prices across Pennsylvania.

Amount of Approved 2015 Sales Price	Number of 2015 Sales Approved by TED	% Distribution
Total sales	321,190	100.0%
Sales with Price=\$0.00	12,976	4.0%
Sales with Price=\$1.00	59,954	18.7%
\$2.00 < Price < \$100.00	3,490	1.1%
Price>\$100.00	244,770	76.2%

In the Fall of 2016, I taught a project course with 5 Heinz College masters students; the project sought to ascertain the statewide, annual costs of property assessments for the 66 counties and the City of Philadelphia. The students developed an online survey in conjunction with a panel of experts, and the Pennsylvania Association of Assessing Officers. The project found that there were 6.4 million parcels in 2015. Also, normal spending by the 66 county assessment offices and Philadelphia¹⁷ totaled about \$70 million or about \$11/parcel. This is about ½ the national average expenditure per parcel, and may explain why measuring the central tendency of sales ratios is so variable in most of Pennsylvania’s counties and the City of Philadelphia.

The coefficient of dispersion measures the deviation of historical assessed values (AV) to observed arms-length sales prices (P) by comparing the ratio (AV/P) to the median value of (AV/P) in each the assessing jurisdiction¹⁸. If an assessor were doing a perfect job, then the assessed value he/she predicted for each property would be identical

¹⁶ Cameron 48.3%, Clarion 46.6%, Clinton 49%, Columbia 40.9%, Crawford, 40.6%, Greene 43.5%, Huntington 41.2%, Jefferson 47.3%, Juniata 45.0%, Susquehanna 56.5%, Tioga 42.6%, Venango 43.1%, Washington 42.5%, and Wyoming 51.4%. See Appendix Table II.2 for the complete list of counties’ sales price distributions.

¹⁷ “Normal spending” for real property assessment purposes entails the *exclusion* of costs of a reassessment, especially a complete canvas and inspection, but includes the salary and capital costs of running a property assessment office. Those counties which had undergone a reassessment or complete canvas reported per parcel costs ranging from \$10/parcel to as much as \$40/parcel. The latter figure typically involved the costs of constructing for the first time an electronic database with confirmed property characteristics such as nature of construction, number of bathrooms, garage spaces, amenities of the location as well as the typical land area and area of living space.

¹⁸ In statistics, the usual measure of the relative variability of a variable is the coefficient of variation which compares the standard deviation of the variable to its mean. In assessment or appraisal of real property, the median rather than the mean is used as a reference point because one outlier in the AV/P ratio can cause very large gyrations in the standard deviation. Use of the median as a reference point reduces the impact of outliers on the overall characterization of the distribution of AV/P.

to the arms length sales price that transacted. If assessments were set at 100% of market value, then each ratio, AV/P, would be identical and equal to 1.0; there would be no variability in the distribution of the ratios. The calculated coefficient of dispersion in this case would be 0.0. As assessed values are different from the arms length prices of properties that transact, it follows that the coefficient of dispersion or COD rises.

As is well known, the International Association of Assessing Officers, the international standard setting organization for best assessment practices, recommends that assessors achieve a coefficient of dispersion (COD) of 20% or less when measuring the variability of sales ratios within an assessing jurisdiction. This is the gold standard. Below 20% is more golden, above 20% is less golden.

Using typical best practice statistical procedures¹⁹ with existing 2015 TED sales data, I calculated and found the statewide COD to be 99.4%, or about 4.5 worse than the gold standard. Deleting the bottom 10% and top 10% of sales ratios reduced the COD statewide to 59.4% or 3 times worse than the gold standard. Appendix I displays the complete county by count results of this analysis of 2015 property sales in Pennsylvania. It is evident that there is an extreme range in the quality of property assessments in Pennsylvania, and that poor assessment quality is often associated with relatively few real property transactions.

Table 6: Pennsylvania statewide 2015 Coefficient of Dispersion under two different strategies for trimming outlying sales ratios

Experiment	Number of Pennsylvania Real Estate Sales Used in Experiment	Statewide Coefficient of Dispersion
IAAO Gold Standard	n/a	20.0%
Experiment 1: Trim top/bottom 5% of AV/P	213,507	99.4%
Experiment 1: Trim top/bottom 10% of AV/P	189,731	59.4%

County by county results for the analysis of the quality of real estate assessment can be found in Appendix I, Table I.3.

3.0 SUMMARY: PAST AS PROLOGUE?

The long view about Pennsylvania’s system of state and local taxes shows one of adoption of new tax bases during times of fiscal exigency, and then raising tax rates to meet immediate needs. Sometimes during periods of economic prosperity tax rates are then reduced. This is unremarkable, and the pattern in most states.

Whether or not the resulting system of state and local taxes in Pennsylvania is up to date or as up to date as might be possible remains a matter of political choice. Several of the important recommendations of the 1981 Pennsylvania Tax Commission were adopted by the General Assembly over time. The base of the Capital Stock and Franchise tax was substantially clarified, and over time, the tax was finally eliminated. Various local nuisance taxes have been eliminated or frozen, and school districts and municipalities have been accorded more of the state personal income tax base. Movement to one assessment law was finally achieved, and local collection of what is now the local earned income tax has been materially improved. On the other hand, diversifying the tax base of

¹⁹ For 2015, there were 313,578 “approved” sales in the TED database; however, restricting the analysis to P>\$100.00 and AV/P > 0.0 reduced the number of sales to be analyzed to 237,340, or a reduction of 24%. Only sales with prices over \$100 were used. Two further trimming experiments were performed: 1) drop the top and bottom 1% of sales ratios, and 2) drop the top and bottom 10% of sales ratios. While there were

counties to more naturally reflect their human services responsibilities has not occurred outside of Philadelphia and Allegheny Counties through their access to the state sales and use tax, and much work remains to put the financing of municipalities and school districts on a sound basis.

Whether or not our fiscal glass is now half full or half empty remains a matter of taste and perception. However, I surmise the difficulties of accomplishing a state budget in a timely manner do not reflect there being an excess of revenues to deal with. Rather, in my view, there is a need to revisit the nature of our state tax bases, to match the nature of it going forward with the nature of our population, and to improve local tax administration of the local real estate assessment system.

As an educator, I like to give grades that encourage more attention and effort to move towards excellence. Right now, the best grade I can give Pennsylvania for the history and likely trajectory of our state and local tax structure is an “I” or Incomplete. That is, there is work to be done. Repeating the recent and distant past in terms of tax policy in the Commonwealth may simply result in keeping our tax policy glass barely half full. Given the more competitive nature of our national economy it is possible that at this level, I fear more will continue to talk with their feet.

Finally, let me briefly comment on the possible effect of the ballot initiative on the property tax that just passed last week. Should the General Assembly now choose to enact the complete or optional exemption of residential property from the local property tax base, in recognition of the results of the ballot initiative last week, it is imaginable that business property owners may start thinking harder about the wisdom of expanding or doing business in Pennsylvania. After all, if the residential property tax were to disappear in a local community, all that would remain would be the business portion of the local property tax. Property tax rates would have to go up dramatically in communities that chose to eliminate the residential property tax to finance desired/needed local services. It may now be advisable for the Select Committee to study the possible direct and indirect effects of moving the local property tax in this new, direction, and publicly disclose just what the new business and agricultural property tax rates would have to be, as well as to disclose what state tax rates would have to rise to in order to finance the lost local residential property taxes.

4.0 BIBLIOGRAPHY

- Fisher, Glenn W. (1986). *The Worst Tax: A History of the Property Tax in America*. (Lawrence, Kansas: University of Kansas Press.)
- McDonald, James (2003). *A Free Nation Deep in Debt: The Financial Roots of Democracy*. (New York, Farrar, Straus and Giroux).
- McKenna, William J. (1960), "The Income Tax in Pennsylvania," *Pennsylvania History: A Journal of Mid-Atlantic Studies*, Volume 27, No. 3, (July 1960). <https://journals.psu.edu/phj/article/viewFile/22746/22515>
- Strauss, Robert P and Yunni Deng (2015) "The Fiscal Implications of Pennsylvania's Aging Population," *State Tax Notes* 75, 3 (January 19, 2015), pp 165-182.
http://www.andrew.cmu.edu/user/rs9f/final_rpstrauss_ydeng_state_tax_notes_1_19_2015.pdf
- Strauss, Robert P. and Sami Dahkha, (2013) "Should Sales Taxes Be Imposed On E-Commerce?," *Journal of Public Economic Theory*, 16, 6 (December, 2013), pp. 803-828.
- Strauss, Robert P. and Elaine Wei (2012) "Predicting the Frequency and Depreciation in Real Estate Assessment Quality in Pennsylvania: 1988-2008 " A Paper Presented at the 105th Annual Research Conference National Tax Association, November 17, 2012
- Strauss, Robert P. (2012) "The Impact of Not Collecting Sales and Use Taxes from Internet Sales in Pennsylvania," 66, *State Tax Notes*, 391 (November 5, 2012)
- Strauss, Robert P. (2006) "The Effects of Defined Benefit Pension Incentives and Working Conditions on Teacher Retirement Decisions," with Joshua Ferguson and William B. Vogt, *Education Finance and Policy*, 3, 1 (Summer, 2006), 316-348. http://www.andrew.cmu.edu/user/rs9f/efp_5_8_06.pdf
- Strauss, Robert P. and David A. Strauss (2003), "Residential Real Estate Assessment Fairness in Four Urban Counties," *State Tax Notes*, 31, 10 (March 8, 2004), 815-820. (reprinted from Proceedings of the National Tax Association 96th Annual Conference on Taxation, Chicago, Illinois , November, 2003, 298-305
- Strauss, Robert P. (1997) "States of Mind: Why Homeowners Hate the Property Tax," *State Tax Notes* 13, (June 16, 1997), pp. 1802-1806.
- Strauss, Robert P. (1995) "Reducing New York's Reliance on the School Property Tax," *Journal of Education Finance*, 21, 1 (Summer, 1995), 123-164. (Reprinted in *State Tax Notes* , 9, 5 (July 31, 1995), 339-360.
- "Reducing New York's Reliance on the School Property Tax," *Journal of Education Finance*, 21, 1 (Summer, 1995), 123-164.
- Strauss, Robert P (1993) "Reforming School Finance in Illinois: Some Observations on Principles, Practicalities, and Politics," *State Tax Notes*, 5, 7 (August 16, 1993), 351-60.
- Strauss, Robert P. and Beverly Bunch (1992), "Municipal Consolidation: An Analysis of the Financial Benefits for Small Fiscally Distressed Municipalities," *Urban Affairs Quarterly*, 27, 4 (July, 1992), 615-629
- Strauss, Robert P. (1986) *Reforming State Business Taxes*, in Steven Gold(editor), *State Business Taxes*.
http://www.andrew.cmu.edu/user/rs9f/rpstrauss_ChaptersBooks/1986/Reforming%20State%20Business%20Taxes_1986.PDF
- Webber, Carolyn and Aaron Wildavsky(1986), *A History of Taxation and Expenditure in the Western World*. (New York: NY: Simon and Schuster)

APPENDIX I DETAILED TABLES

Table I. 1: Distribution of Approved 2015 Sales Prices by Tax Equalization Board by Pennsylvania County

County	TEB Approved Sales Price in 2015				% Distribution of Approved 2015 Sales Prices				
	P= \$0.00	P= \$1.00	P> \$1.00	Total	P= \$0.00	P= \$1.00	P <=1	P>\$1.00	Total
Adams	228	715	2,050	2,993	7.6%	23.9%	31.5%	68.5%	100.0%
Allegheny	1,330	6,571	26,040	33,941	3.9%	19.4%	23.3%	76.7%	100.0%
Armstrong	153	-	1,088	1,241	12.3%	0.0%	12.3%	87.7%	100.0%
Beaver	4	110	2,940	3,054	0.1%	3.6%	3.7%	96.3%	100.0%
Bedford	-	669	872	1,541	0.0%	43.4%	43.4%	56.6%	100.0%
Berks	2,014	1,130	8,164	11,308	17.8%	10.0%	27.8%	72.2%	100.0%
Blair	14	1,057	2,411	3,482	0.4%	30.4%	30.8%	69.2%	100.0%
Bradford	-	-	932	932	0.0%	0.0%	0.0%	100.0%	100.0%
Bucks	382	3,254	11,259	14,895	2.6%	21.8%	24.4%	75.6%	100.0%
Butler	-	-	4,382	4,382	0.0%	0.0%	0.0%	100.0%	100.0%
Cambria	149	1,424	2,672	4,245	3.5%	33.5%	37.1%	62.9%	100.0%
Cameron	34	81	123	238	14.3%	34.0%	48.3%	51.7%	100.0%
Carbon	-	403	1,719	2,122	0.0%	19.0%	19.0%	81.0%	100.0%
Centre	2	1,096	2,327	3,425	0.1%	32.0%	32.1%	67.9%	100.0%
Chester	-	-	8,785	8,785	0.0%	0.0%	0.0%	100.0%	100.0%
Clarion	20	670	791	1,481	1.4%	45.2%	46.6%	53.4%	100.0%
Clearfield	26	873	1,639	2,538	1.0%	34.4%	35.4%	64.6%	100.0%
Clinton	156	481	662	1,299	12.0%	37.0%	49.0%	51.0%	100.0%
Columbia	-	799	1,156	1,955	0.0%	40.9%	40.9%	59.1%	100.0%
Crawford	328	1,010	1,956	3,294	10.0%	30.7%	40.6%	59.4%	100.0%
Cumberland	69	1,817	4,929	6,815	1.0%	26.7%	27.7%	72.3%	100.0%
Dauphin	-	-	5,893	5,893	0.0%	0.0%	0.0%	100.0%	100.0%
Delaware	-	-	9,695	9,695	0.0%	0.0%	0.0%	100.0%	100.0%
Elk	-	-	558	558	0.0%	0.0%	0.0%	100.0%	100.0%

County	TEB Approved Sales Price in 2015				% Distribution of Approved 2015 Sales Prices				
	P= \$0.00	P= \$1.00	P> \$1.00	Total	P= \$0.00	P= \$1.00	P <=1	P>\$1.00	Total
Erie	2,232	1	4,120	6,353	35.1%	0.0%	35.1%	64.9%	100.0%
Fayette	-	-	984	984	0.0%	0.0%	0.0%	100.0%	100.0%
Forest	12	276	315	603	2.0%	45.8%	47.8%	52.2%	100.0%
Franklin	1,064	20	2,583	3,667	29.0%	0.5%	29.6%	70.4%	100.0%
Fulton	24	247	261	532	4.5%	46.4%	50.9%	49.1%	100.0%
Greene	554	1	722	1,277	43.4%	0.1%	43.5%	56.5%	100.0%
Huntingdon	-	593	847	1,440	0.0%	41.2%	41.2%	58.8%	100.0%
Indiana	299	85	607	991	30.2%	8.6%	38.7%	61.3%	100.0%
Jefferson	-	864	964	1,828	0.0%	47.3%	47.3%	52.7%	100.0%
Juniata	3	334	412	749	0.4%	44.6%	45.0%	55.0%	100.0%
Lackawanna	25	1,972	3,585	5,582	0.4%	35.3%	35.8%	64.2%	100.0%
Lancaster	-	-	9,344	9,344	0.0%	0.0%	0.0%	100.0%	100.0%
Lawrence	275	834	2,046	3,155	8.7%	26.4%	35.2%	64.8%	100.0%
Lebanon	141	864	2,798	3,803	3.7%	22.7%	26.4%	73.6%	100.0%
Lehigh	-	2,320	6,865	9,185	0.0%	25.3%	25.3%	74.7%	100.0%
Luzerne	85	3,083	6,931	10,099	0.8%	30.5%	31.4%	68.6%	100.0%
Lycoming	-	1,109	2,002	3,111	0.0%	35.6%	35.6%	64.4%	100.0%
Mckean	644	1	1,205	1,850	34.8%	0.1%	34.9%	65.1%	100.0%
Mercer	-	1,138	2,378	3,516	0.0%	32.4%	32.4%	67.6%	100.0%
Mifflin	571	7	1,043	1,621	35.2%	0.4%	35.7%	64.3%	100.0%
Monroe	97	1,609	6,428	8,134	1.2%	19.8%	21.0%	79.0%	100.0%
Montgomery	-	-	14,352	14,352	0.0%	0.0%	0.0%	100.0%	100.0%
Montour	5	133	335	473	1.1%	28.1%	29.2%	70.8%	100.0%
Northampton	-	-	5,944	5,944	0.0%	0.0%	0.0%	100.0%	100.0%
Northumberland	28	956	1,852	2,836	1.0%	33.7%	34.7%	65.3%	100.0%
Perry	61	466	830	1,357	4.5%	34.3%	38.8%	61.2%	100.0%
Philadelphia	3	6,560	28,243	34,806	0.0%	18.8%	18.9%	81.1%	100.0%

County	TEB Approved Sales Price in 2015				% Distribution of Approved 2015 Sales Prices				
	P= \$0.00	P= \$1.00	P> \$1.00	Total	P= \$0.00	P= \$1.00	P <=1	P>\$1.00	Total
Pike	95	1,203	2,710	4,008	2.4%	30.0%	32.4%	67.6%	100.0%
Potter	-	1	255	256	0.0%	0.4%	0.4%	99.6%	100.0%
Schuylkill	4	1,640	3,455	5,099	0.1%	32.2%	32.2%	67.8%	100.0%
Snyder	-	514	623	1,137	0.0%	45.2%	45.2%	54.8%	100.0%
Somerset	-	871	1,347	2,218	0.0%	39.3%	39.3%	60.7%	100.0%
Sullivan	-	-	224	224	0.0%	0.0%	0.0%	100.0%	100.0%
Susquehanna	244	796	800	1,840	13.3%	43.3%	56.5%	43.5%	100.0%
Tioga	-	654	882	1,536	0.0%	42.6%	42.6%	57.4%	100.0%
Union	-	-	645	645	0.0%	0.0%	0.0%	100.0%	100.0%
Venango	41	820	1,137	1,998	2.1%	41.0%	43.1%	56.9%	100.0%
Warren	-	515	783	1,298	0.0%	39.7%	39.7%	60.3%	100.0%
Washington	1,196	2,155	4,533	7,884	15.2%	27.3%	42.5%	57.5%	100.0%
Wayne	327	1,016	2,118	3,461	9.4%	29.4%	38.8%	61.2%	100.0%
Westmoreland	37	3,642	7,353	11,032	0.3%	33.0%	33.3%	66.7%	100.0%
Wyoming	-	494	467	961	0.0%	51.4%	51.4%	48.6%	100.0%
York	-	-	10,236	10,236	0.0%	0.0%	0.0%	100.0%	100.0%
Total	12,976	59,954	248,607	321,537	4.0%	18.6%	22.7%	77.3%	100.0%

Table I. 2: Pennsylvania Tax Equalization Board Common Level Ratios for 2015 Compared to Median Ratio of AV/P for Sales Prices over \$100

County	2015 Tax Equalization Board Common Level Ratio (CLR)	Number of 2015 Sales P > \$100 and ratio > 0	Median AV/P for 2015 with P > \$100 and ratio > 0	CLR - Median	% Diff TED vs Median
*Adams	116.0%	1,999	124.1%	-8.1%	-6.5%
*Allegheny	87.1%	24,832	85.0%	2.1%	2.5%
Armstrong	43.9%	982	30.8%	13.1%	42.3%
Beaver	27.8%	2,896	22.0%	5.9%	26.7%
*Bedford	96.6%	858	90.9%	5.7%	6.3%
*Berks	74.3%	7,371	73.0%	1.3%	1.7%
*Blair	10.8%	2,381	10.0%	0.8%	8.3%
Bradford	33.3%	926	26.9%	6.4%	23.8%
*Bucks	11.1%	10,758	10.2%	0.9%	9.0%
*Butler	10.9%	4,226	9.3%	1.6%	17.6%
*Cambria	24.7%	2,595	22.2%	2.5%	11.5%
Cameron	67.7%	116	57.9%	9.8%	16.9%
Carbon	52.8%	1,689	45.5%	7.3%	16.0%
Centre	28.0%	2,247	26.0%	2.0%	7.8%
*Chester	53.8%	8,784	52.6%	1.3%	2.4%
Clarion	37.7%	767	28.7%	9.0%	31.2%
Clearfield	14.7%	1,620	12.1%	2.6%	21.8%
*Clinton	88.4%	617	90.3%	-1.9%	-2.1%
Columbia	27.1%	1,112	23.5%	3.6%	15.4%
Crawford	37.8%	1,934	27.5%	10.3%	37.3%
*Cumberland	99.8%	4,880	101.0%	-1.2%	-1.2%
*Dauphin	73.2%	5,763	81.2%	-8.0%	-9.9%
*Delaware	65.0%	9,619	66.8%	-1.8%	-2.8%

County	2015 Tax Equalization Board Common Level Ratio (CLR)	Number of 2015 Sales P > \$100 and ratio > 0	Median AV/P for 2015 with P > \$100 and ratio>0	CLR - Median	% Diff TED vs Median
Elk	43.7%	338	41.2%	2.5%	6.2%
*Erie	95.3%	4,013	96.8%	-1.5%	-1.5%
*Fayette	72.5%	984	63.8%	8.7%	13.6%
Forest	23.7%	309	18.5%	5.2%	28.3%
*Franklin	14.0%	2,505	12.8%	1.2%	9.5%
*Fulton	38.8%	256	40.8%	-2.0%	-4.9%
*Greene	67.8%	583	40.8%	27.0%	66.3%
Huntingdon	24.3%	814	19.5%	4.8%	24.5%
*Indiana	19.8%	585	12.6%	7.3%	57.8%
*Jefferson	49.2%	924	32.8%	16.4%	50.0%
*Juniata	18.2%	408	13.2%	5.0%	38.1%
*Lackawanna	14.4%	3,490	13.2%	1.2%	8.9%
*Lancaster	75.5%	9,251	77.2%	-1.7%	-2.3%
*Lawrence	87.0%	1,991	88.1%	-1.1%	-1.3%
*Lebanon	106.5%	2,756	106.6%	-0.1%	-0.1%
* Lehigh	99.0%	6,490	98.4%	0.6%	0.6%
*Luzerne	103.8%	5,800	117.1%	-13.3%	-11.3%
*Lycoming	74.6%	1,970	75.4%	-0.8%	-1.0%
*McKean	93.8%	1,181	77.7%	16.1%	20.7%
Mercer	29.0%	1,841	20.2%	8.8%	43.6%
Mifflin	48.2%	1,035	47.5%	0.7%	1.5%
Monroe	22.4%	6,330	28.1%	-5.7%	-20.3%
*Montgomery	56.1%	13,799	54.9%	1.2%	2.2%
*Montour	77.0%	325	74.4%	2.6%	3.5%
Northampton	34.3%	5,810	33.9%	0.4%	1.3%

County	2015 Tax Equalization Board Common Level Ratio (CLR)	Number of 2015 Sales P > \$100 and ratio > 0	Median AV/P for 2015 with P > \$100 and ratio>0	CLR - Median	% Diff TED vs Median
*Northumberland	25.6%	1,787	18.1%	7.5%	41.6%
*Perry	97.5%	778	106.2%	-8.7%	-8.2%
*Philadelphia	98.3%	27,201	108.8%	-10.5%	-9.7%
Pike	24.7%	2,614	25.0%	-0.3%	-1.2%
*Potter	34.4%	244	26.8%	7.7%	28.6%
Schuylkill	45.9%	3,159	41.2%	4.7%	11.3%
*Snyder	17.1%	621	15.4%	1.7%	10.8%
Somerset	40.1%	1,236	29.4%	10.7%	36.2%
*Sullivan	70.4%	224	73.6%	-3.2%	-4.4%
Susquehanna	36.4%	685	29.0%	7.4%	25.7%
*Tioga	70.5%	790	60.4%	10.1%	16.6%
*Union	77.9%	645	73.3%	4.6%	6.3%
*Venango	84.4%	730	80.9%	3.5%	4.3%
Warren	33.1%	597	25.3%	7.8%	30.8%
Washington	10.7%	3,986	10.4%	0.3%	3.2%
*Wayne	90.6%	1,990	112.7%	-22.1%	-19.6%
*Westmoreland	17.3%	7,008	15.9%	1.4%	8.6%
Wyoming	18.3%	440	19.2%	-0.9%	-4.5%
*York	88.0%	9,845	91.9%	-3.9%	-4.3%

Table I. 3: Comparison of Common Level Ratio to Trimmed Median Sales Ratios and Coefficients of Dispersion

		Trimming Rules: P>\$100, AV/P > 0 and Bottom and Top 5% of Ratios Dropped				Trimming Rules: P>\$100, AV/P > 0 and Bottom and Top 10% of Ratios Dropped		
Table I.3	(1)	(2)	(3)	(4)		(5)	(6)	(7)
County	2015 Common Level Ratio	Trimmed 2015 Sales	Median 2015 AV/P	Coefficient of Dispersion		Trimmed 2015 Sales	Median 2015 AV/P	Coefficient of Dispersion
Statewide		213,507	67.5%	94.4%		189, 731	67.5	59.7%
1 : Adams	116.0%	1,799	124.1%	311.6%		1,599	124.1%	65.3%
2 : Allegheny	87.1%	22,348	85.0%	80.5%		19,864	85.0%	41.4%
3 : Armstrong	43.9%	882	30.8%	75.2%		784	30.8%	52.9%
4 : Beaver	27.8%	2,605	22.0%	86.2%		2,316	22.0%	52.6%
5 : Bedford	96.6%	772	90.9%	87.3%		686	90.9%	49.1%
6 : Berks	74.3%	6,632	73.0%	140.9%		5,895	73.0%	54.2%
7 : Blair	10.8%	2,140	10.0%	103.4%		1,903	10.0%	54.6%
8 : Bradford	33.3%	832	26.9%	55.8%		740	26.9%	38.3%
9 : Bucks	11.1%	9,680	10.2%	37.9%		8,602	10.2%	14.9%
10: Butler	10.9%	3,797	9.3%	52.6%		3,368	9.3%	37.9%
11: Cambria	24.7%	2,334	22.2%	231.3%		2,075	22.2%	110.6%
12: Cameron	67.7%	104	57.9%	198.8%		92	57.9%	106.4%
13: Carbon	52.8%	1,519	45.5%	136.9%		1,349	45.5%	60.7%
14: Centre	28.0%	2,021	26.0%	31.0%		1,797	26.0%	18.4%
15: Chester	53.8%	7,904	52.6%	17.6%		7,026	52.6%	12.5%
16: Clarion	37.7%	686	28.7%	88.5%		613	28.7%	62.4%
17: Clearfield	14.7%	1,454	12.1%	102.1%		1,293	12.1%	63.4%
18: Clinton	88.4%	555	90.3%	160.0%		493	90.3%	55.1%
19: Columbia	27.1%	1,000	23.5%	92.0%		888	23.5%	44.2%
20: Crawford	37.8%	1,740	27.5%	96.4%		1,545	27.5%	62.3%
21: Cumberland	99.8%	4,392	101.0%	17.5%		3,904	101.0%	11.5%

		Trimming Rules: P>\$100, AV/P > 0 and Bottom and Top 5% of Ratios Dropped			Trimming Rules: P>\$100, AV/P > 0 and Bottom and Top 10% of Ratios Dropped		
Table I.3	(1)	(2)	(3)	(4)	(5)	(6)	(7)
County	2015 Common Level Ratio	Trimmed 2015 Sales	Median 2015 AV/P	Coefficient of Dispersion	Trimmed 2015 Sales	Median 2015 AV/P	Coefficient of Dispersion
22: Dauphin	73.2%	5,185	81.2%	332.6%	4,609	81.2%	121.6%
23: Delaware	65.0%	8,656	66.8%	61.1%	7,695	66.8%	41.4%
24: Elk	43.7%	304	41.2%	147.4%	270	41.2%	87.0%
25: Erie	95.3%	3,611	96.8%	66.5%	3,209	96.8%	28.7%
26: Fayette	72.5%	884	63.8%	31.2%	786	63.8%	24.9%
27: Forest	23.7%	277	18.5%	91.1%	247	18.5%	61.7%
28: Franklin	14.0%	2,253	12.8%	228.2%	2,003	12.8%	28.6%
29: Fulton	38.8%	229	40.8%	60.7%	204	40.8%	39.0%
30: Greene	67.8%	521	40.8%	114.1%	465	40.8%	83.4%
31: Huntingdon	24.3%	732	19.5%	61.1%	650	19.5%	42.7%
32: Indiana	19.8%	525	12.6%	101.2%	463	12.6%	65.4%
33: Jefferson	49.2%	828	32.8%	79.5%	738	32.8%	61.7%
34: Juniata	18.2%	366	13.2%	52.6%	326	13.2%	40.6%
35: Lackawanna	14.4%	3,140	13.2%	292.1%	2,792	13.2%	135.9%
36: Lancaster	75.5%	8,325	77.2%	35.2%	7,399	77.2%	17.7%
37: Lawrence	87.0%	1,791	88.1%	134.4%	1,591	88.1%	73.3%
38: Lebanon	106.5%	2,480	106.6%	95.8%	2,204	106.6%	26.8%
39: Lehigh	99.0%	5,840	98.4%	98.4%	5,192	98.4%	29.9%
40: Luzerne	103.8%	5,218	117.1%	227.4%	4,639	117.1%	97.5%
41: Lycoming	74.6%	1,772	75.4%	52.3%	1,576	75.4%	29.8%
42: Mckean	93.8%	1,060	77.7%	100.6%	942	77.7%	64.8%
43: Mercer	29.0%	1,655	20.2%	141.0%	1,471	20.2%	80.9%
44: Mifflin	48.2%	930	47.5%	129.2%	827	47.5%	72.3%

		Trimming Rules: P>\$100, AV/P > 0 and Bottom and Top 5% of Ratios Dropped				Trimming Rules: P>\$100, AV/P > 0 and Bottom and Top 10% of Ratios Dropped		
Table I.3	(1)	(2)	(3)	(4)		(5)	(6)	(7)
County	2015 Common Level Ratio	Trimmed 2015 Sales	Median 2015 AV/P	Coefficient of Dispersion		Trimmed 2015 Sales	Median 2015 AV/P	Coefficient of Dispersion
45: Monroe	22.4%	5,694	28.1%	210.4%		5,064	28.1%	102.6%
46: Montgomery	56.1%	12,419	54.9%	74.8%		11,038	54.9%	20.7%
47: Montour	77.0%	291	74.4%	28.5%		259	74.4%	20.8%
48: Northampton	34.3%	5,228	33.9%	351.8%		4,648	33.9%	66.3%
49: Northumberland	25.6%	1,606	18.1%	252.7%		1,427	18.1%	147.5%
50: Perry	97.5%	699	106.2%	65.3%		622	106.2%	35.5%
51: Philadelphia	98.3%	24,479	108.8%	72.9%		21,757	108.8%	52.6%
52: Pike	24.7%	2,351	25.0%	682.1%		2,090	25.0%	303.6%
53: Potter	34.4%	218	26.8%	42.6%		194	26.8%	32.8%
54: Schuylkill	45.9%	2,843	41.2%	220.2%		2,524	41.2%	97.1%
55: Snyder	17.1%	557	15.4%	39.1%		495	15.4%	30.9%
56: Somerset	40.1%	1,112	29.4%	54.6%		988	29.4%	40.1%
57: Sullivan	70.4%	200	73.6%	60.4%		178	73.6%	37.1%
58: Susquehanna	36.4%	615	29.0%	143.4%		547	29.0%	66.0%
59: Tioga	70.5%	710	60.4%	109.5%		632	60.4%	56.2%
60: Union	77.9%	579	73.3%	33.2%		515	73.3%	24.0%
61: Venango	84.4%	656	80.9%	106.8%		584	80.9%	62.2%
62: Warren	33.1%	537	25.3%	98.5%		477	25.3%	61.8%
63: Washington	10.7%	3,585	10.4%	149.3%		3,187	10.4%	63.1%
64: Wayne	90.6%	1,790	112.7%	149.8%		1,591	112.7%	77.2%
65: Westmoreland	17.3%	6,305	15.9%	149.8%		5,557	15.9%	69.8%
66: Wyoming	18.3%	396	19.2%	145.3%		352	19.2%	49.3%
67: York	88.0%	8,859	91.9%	176.6%		7,875	91.9%	44.0%