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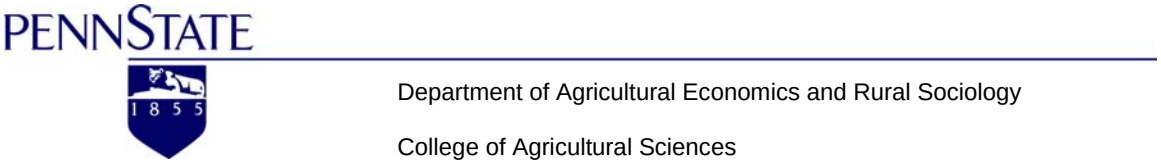

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Reforming Pennsylvania's Property Taxes: An Analysis of the Economic Impacts of Shifting from the Real Property Tax to a Sales Tax to Fund Education[1]

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Many Pennsylvanians are concerned about how recent increases in local property taxes will impact their well-being and the state economy. Political and business leaders, for example, have argued that the state's economic potential is hindered by "the high costs of doing business" (e.g., taxes). Similarly, because property tax payments are based on the value of land, Pennsylvania's farmers are increasingly worried that escalating tax bills will force them out of business.

Tax anxiety is not limited to the business community. Senior citizens across the Commonwealth worry that growing property tax bills will outpace their ability to pay. Reflecting these concerns, a December 2004 *Issues PA* poll indicated that 70% of Pennsylvanians think that local property taxes are "too high" (Pennsylvania Economy League 2004).

Concern about property taxes has resulted in two recent laws giving school districts and local governments the opportunity to change the tax burden (Act 50 of 1998 and Act 72 of 2004). To date, however, neither has found widespread support, sending policymakers back to the drawing board. One of the more visible proposals lawmakers are considering calls for the state to eliminate the local real property tax for education, replacing it with revenues generated through expanded sales taxes.

In this brief we examine the implications of such a proposal on Pennsylvania businesses and households. Using a model of the state economy, we find that such a change would have only a small effect on overall state output; instead, the primary effect would be a shift of economic activity from industries that experience an increased tax burden (e.g., services) to industries with lowered

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effective tax rates (e.g., agriculture). More importantly, however, the proposal would eliminate much of the contribution that businesses make to funding K-12 education, placing the responsibility of school finance almost entirely on Pennsylvania consumers.

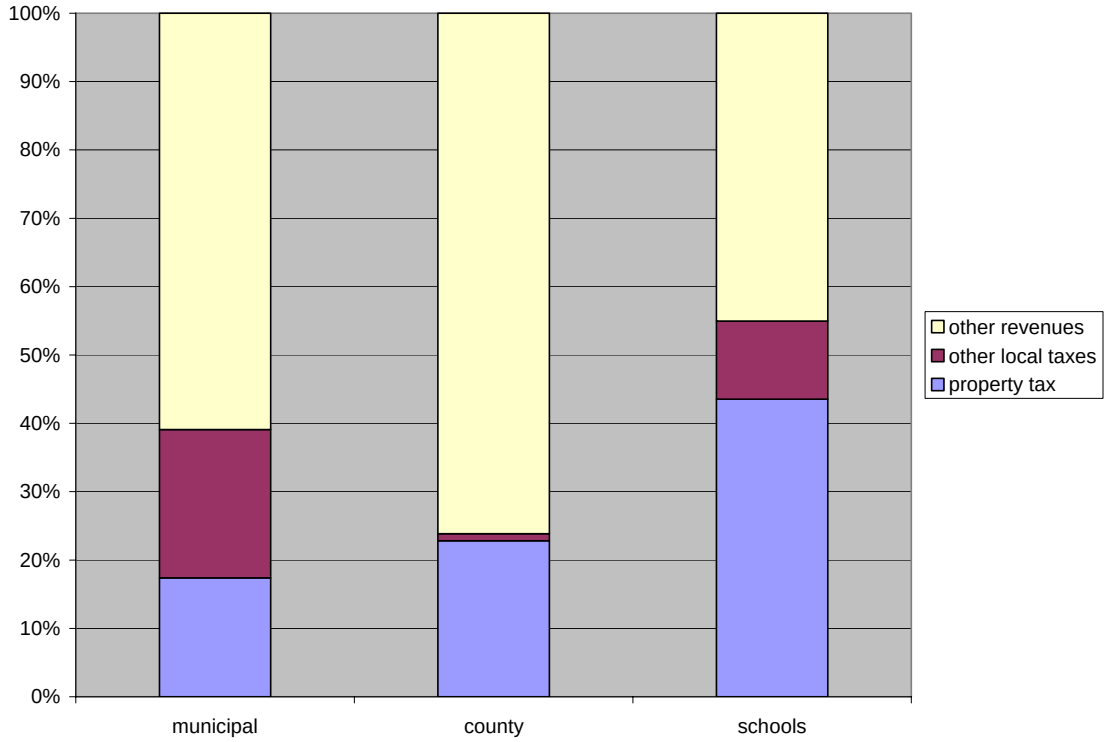
An overview of Pennsylvania's property taxes

The real property tax is the most important source of tax revenue to local jurisdictions in Pennsylvania. In 2001, it provided 75% of total tax collections to all governments and school districts in the Commonwealth (excluding Philadelphia). Real property tax revenues account for 76% of locally generated school district tax revenue, 97% of county tax revenue, and 42% of township tax revenue. Other notable aspects of the real property tax include:

- About 73% of all property taxes paid in Pennsylvania (excluding Philadelphia) are collected by school districts. Payments to county and municipal governments account for around 16% and 13% of local property taxes paid, respectively.

- Counties, municipalities and school districts vary in the extent to which they depend on property tax revenues as an overall revenue source. For municipalities (excluding Philadelphia), the local property tax provided about 17% of all revenues in 2001 (Figure 1). School districts and counties generated about 44% and 23% of all revenues from local property taxes in 2001, respectively. "Other revenues" are the predominant source of revenue for all jurisdictions, consisting primarily of state and federal transfers.

Figure 1. Total Revenue, by source, by Jurisdictional Type, 2001 (excluding Philadelphia)



Source: Department of Community and Economic Development and Department of Education

Pennsylvania has enacted several recent property tax reform measures

Before describing our analysis it is useful to recap the recent history of Pennsylvania tax reform measures. The passage of Act 50 of 1998 provided school districts the option of increasing earned income tax rates in exchange for eliminating nuisance taxes (such as the occupation and per capita taxes) and reducing the property tax. In addition, Act 50 authorized a homestead and farmstead exclusion for counties, municipalities, and school districts. An important component of Act 50 was that it required communities to decide for themselves whether or not they wanted to switch to the new system. The local choice nature of Act 50 meant communities would consider for themselves whether the current local tax system was fair, or whether it needed to be changed. Only a handful of Pennsylvania's 501 school districts chose to make such a change under Act 50.

Act 72 of 2004, known as The Homeowner Tax Relief Act, was intended to reduce homeowners' and farmers' real property tax bill, through a combination of new money from state gaming revenues and higher local income taxes. The real property tax reductions were targeted to homeowners and farmers through homestead and farmstead exclusions, rather than given to all property owners

(such as local businesses, landlords, and non-residents). Act 72 also gave voters in participating school districts the right to approve or disapprove future property tax increases that are greater than inflation through a local vote called the "back-end referendum."

Despite Pennsylvanians' repeated requests for property tax relief, neither Act 50 nor Act 72 have been widely adopted, for a variety reasons. Thus, the Commonwealth continues to wrestle with alternatives to the property tax, including a recent proposal to eliminate school property taxes in favor of an expanded sales tax.

Modeling Pennsylvania's economy

Local property tax changes, when enacted statewide, can have economy-wide impacts. Replacing property taxes with a sales or income tax would change the distribution of the burden of tax revenue collections across economic sectors and income classes. On the surface, it seems intuitive that a *revenue-neutral*[2] tax change that lowers the tax burdens of some groups must necessarily increase total taxes paid by other groups. This may not be the case, however, if tax changes remove economic inefficiencies and/or spur economic growth.

To examine both the distributional and growth consequences of tax reform, economists are increasingly utilizing Computable General Equilibrium (CGE) models. CGE models provide a detailed picture of the workings of an economy, such as:

- how businesses demand labor and intermediate inputs;
- how households participate in the economy, both as consumers and as the labor supply; and
- how both businesses and households respond to economic change.

As a result, CGE models can improve our understanding of the overall economy and the impacts of local taxation. Further, because CGE models are designed to capture interrelationships in a state economy, they are extremely useful for simulating economic outcomes under alternative tax policies. For example, a CGE model was recently used in Oregon to examine the potential impacts of implementing a new state sales tax in order to reduce local property taxes (Waters et al 1997). Similarly, Julia-Wise, Cooke and Holland (2002) have used a CGE model to examine a property tax limitation initiative in Idaho.

[2] Revenue neutrality means that while the source of tax revenues may change, the amount collected does not.

The Benchmark Economy

A key aspect of any economic model is describing the baseline (benchmark) economy (i.e., the economy as it is without changes in tax policy). Looking first at the industry side, the total value of production in Pennsylvania in 2000 was $723.59 billion (Table 1); of this $376.96 billion was value-added activity.[3] This activity supported about 6.89 million jobs.

Table 1. Select benchmark economy values for industry

Industry	Output (millions)	Value-added (millions)	Employment (thousands)
Agriculture	$6,821.68	$2,634.57	85.32
Mining	7,047.80	2,780.05	26.26
Construction	49,921.84	20,180.84	368.88
Manufacturing	217,561.90	77,221.52	954.81
Utility	62,728.75	31,745.96	351.92
Wholesale trade	36,350.45	19,948.15	301.98
Retail trade	49,949.33	29,996.92	1,171.17
FIRE	109,127.80	66,278.32	513.49
Services	144,574.50	89,326.34	2,348.78
Others	39,514.37	36,851.71	785.27
Pennsylvania total	$723,598.40	$376,964.38	6,887.87

Source: IMPLAN data set

Examining household income distribution is also key in establishing the benchmark economy. In Table 2 we show the number of households and average annual income in each of 9 income classes. Here, for example, we see that Pennsylvania has 724,525 households considered middle income (MM); household income for this group averaged $55,078 in 2000. Overall, Pennsylvania had nearly 4.8 million households in 2000.

[3] Value added (or Gross State Product) measures "new" economic activity in the state, and refers to the difference between the value of shipments and the cost of labor, materials, supplies, utilities, etc. Value added consists primarily of employee compensation, capital costs and profit. Because it eliminates the double-counting that occurs when looking at total output, it is the preferred measure of economic activity. The national analogue for GSP is Gross Domestic Product.

Table 2. Number of households in each income category

Income group	*Number of households*	*Average annual income*
Low Low	942,455	$2,809
Low Middle	507,072	9,168
Low High	931,941	16,053
Middle Low	738,384	29,447
Middle Middle	724,525	55,078
Middle High	599,788	121,451
High Low	179,219	278,953
High Middle	98,929	468,594
High High	56,394	616,830
Pennsylvania	4,778,708	$60,244

Source: Minnesota IMPLAN Group

Estimating the output and distributional impacts of replacing the education component of the property tax with an expanded state sales tax

The remainder of this brief examines the potential impacts of replacing local school property taxes with an expanded sales tax base (at a lower sales tax rate). The Pennsylvania CGE model recently developed by researchers at Penn State University (Kelsey et al 2005) was utilized in the analysis.

The first step in the analysis was to reduce the local real property taxes paid by all households and industries by 70%. This policy was explored by adjusting business and household tax rates in the CGE model. (As shown above, a little more than 70% of all property tax dollars are used to partially fund Pennsylvania schools; taxpayers would still pay the remaining 30%, which goes to county and municipal governments, since the tax reform proposal only eliminates real property taxes paid to schools.)

While modeling property tax relief in a CGE model is straightforward, it is more difficult to model the offsetting revenue sources that are necessary to maintain what economists call “revenue neutrality.” Simply put, any reduction in property taxes paid needs to be offset by increased tax revenues from other sources if service levels are to remain unchanged.

Thus, the second step in the modeling effort was to design a sales tax regime that maintained revenue neutrality. To do this we first reduced the state sales tax rate on goods currently taxed from 6% to 5%. To capture the broader range of goods and services to be taxed we then introduced a 5% sales tax on a number of goods and services heretofore untaxed (e.g., groceries, clothing, professional

services, health care and utilities). For the sectors in the CGE model, revenue neutrality was obtained with the following new sales tax structure:

- Increase the overall sales tax rate on the retail sector from 3.8% to 5.0%
- Increase the overall sales tax on services from 0.5% to 3.0%
- Increase the overall sales tax on utilities from 1.6% to 4.0%

This scenario, then, expands the overall tax base for retail, services and utilities. Under this framework the reductions in property tax revenues are almost exactly offset by increases in sales tax revenues.

Industry Results: Little effect on growth—some redistribution among sectors

While the CGE model provides information on numerous impacts, we focused on a few select items of particular interest (detailed estimates of overall impacts are available from the authors on request). Overall, the proposed change would have a small positive impact on total output (less than 0.1%) and very small negative (negligible) impacts on gross state product (value added) and total employment (Table 3).

However, there are a number of notable changes within the economy. For example, output and value added for the agriculture sector are both projected to increase by about 1.4%, likely reflecting lower production costs due to property tax reductions. (Multiplying this change by the baseline economy in Table 1 gives an increase in output of about $94.8 million and an increase in value added of about $36.6.) Other sectors with notable gains are finance, insurance and real estate (FIRE) (2.8%; $3.1 billion in output and $1.9 billion in value added) and wholesale trade (2.4%; $872.4 million in output and $478.8 million in value added).

Because of higher sales taxes, output decreases for both utilities (-3%; -$1.9 billion in output and -$965.1 million in value added) and services (-2.8%; -$4.0 billion in output and -$2.5 billion in value added). One interesting result is that retail trade output increases by 1.6% ($824.2 million in output and $494.9 million in value added), despite a higher overall sales tax rate (remember, the effective rate on all retail increased from 3.8 % to 5 %). This is likely due to: 1) the fact that the small overall rate increase was partially offset by a reduction in property taxes; and 2) the increased taxes on other products mean services and utilities are more expensive relative to retail goods, hence encouraging consumers to substitute retail goods for services.

Table 3. Estimated changes in the baseline economy with proposed new sales tax structure

	Percentage Change in			Total Change in		
Industry	***Output***	***Value added***	***Employment***	***Output (millions)***	***Value added (millions)***	***Employment (thousands)***
Agriculture	1.39%	1.39%	1.86%	$94.8	$36.6	1.59
Mining	1.34%	1.34%	1.81%	$94.4	$37.3	0.48
Construction	0.26%	0.26%	0.39%	$129.8	$52.5	1.44
Manufacturing	0.62%	0.62%	1.16%	$1,348.9	$478.8	11.08
Utilities	-3.04%	-3.04%	-2.45%	-$1,907.0	-$965.1	-8.62
Wholesale trade	2.40%	2.40%	2.80%	$872.4	$478.8	8.46
Retail trade	1.65%	1.65%	2.03%	$824.2	$494.9	23.77
Finance, Insurance and Real Estate	2.83%	2.83%	3.99%	$3,088.3	$1,875.7	20.49
Services	-2.76%	-2.76%	-2.62%	-$3,990.3	-$2,465.4	-61.54
Others	-0.08%	-0.08%	0.13%	-$31.6	-$29.5	1.02
Total	0.07%	-0.08%	0.00%	$524.0	-$5.5	-1.84

Household Results: Most will be worse off

One way economists measure how a change impacts households is to measure changes in consumer well-being, or welfare. A standard measure of welfare is compensating variation (CV), which measures how changes in the relative prices of goods affect the cost to households of maintaining their baseline standard of living.

The overall welfare impacts of this proposal are negative. Here, the average household would need $89.52 in additional income to be as well off after the change as they were before it. The results show great variability across income classes. A typical lowest income household (LL: average income $2,809) would be about $4 worse off in terms of welfare; the highest income category (HH: average income $616,830) would be about $357 worse in terms of welfare (Table 4). Unlike other income classes, the HL group (average income $278,953) is projected to see a $78 improvement in welfare.

Why are households worse off? The proposed policy change affects households in several ways. First, by lowering property taxes, households have more available income. However, higher taxes on consumption erode much of this new purchasing power. In addition, in order to maintain revenue neutrality, households are being required to make up for lost property tax revenues from businesses through higher consumption taxes. Thus, we see that the proposed policy would make households responsible for a greater share of school revenues.

Table 4. Change in household compensating variation

Household income group	***Change in Compensation Variation per household***
Low Low	-$4.33
Low Middle	-18.90
Low High	-24.78
Middle Low	-36.61
Middle Middle	-41.16
Middle High	-148.70
High Low	78.74
High Middle	-77.51
High High	-357.11
Average	-$89.52

Among households, renters would likely be more negatively impacted than would homeowners because renters are less likely to benefit from property tax reductions, as they do not pay taxes directly (though they do pay the real property taxes indirectly through their rent). However, renters would face higher taxes on consumption. In Table 5 we show homeownership rates by income category for Pennsylvania, based on the 2000 U.S. Census.

Table 5. Percent of households owning homes, by income category

Household Income Group	PA Home Ownership Rate
Low Low	24%
Low Middle	31%
Low High	36%
Middle Low	50%
Middle Middle	60%
Middle High	72%
High Low	81%
High Middle	76%
High High	71%

Source: U.S. Census 2000

Summary

Many Pennsylvanians complain about property tax levels and increases, as well as the inherent inequities in school systems funded through tax revenues that vary widely from community to community. Yet two new laws adopted since 1998 have failed to result in meaningful tax reform in the Commonwealth, leaving citizens and policymakers to continue seeking new policy options.

One proposal lawmakers are considering is eliminating the local property tax for education and replacing it with an expanded sales tax. In this brief we analyzed one variant of this proposal using a model of the state economy. Overall, our analysis yields two significant results. First, the measure would result in a negligible change in overall state economic activity. Instead there would be a small redistribution among industries. Second, most households would be somewhat worse off. While the simulated tax policy eliminates property taxes for both businesses and households, the revenues needed to finance schools must be generated somehow, in this case through additional taxes on households through consumption.

References

Julia-Wise, R., S. Cooke and D. Holland. 2002. “A Computable General Equilibrium Analysis of a Property Tax Limitation Initiative in Idaho.” Working Paper, University of Idaho.

Kelsey, T., M. Shields, J. Shortle and E. Marshall. 2005. “Economic Effects of Pennsylvania’s Current System of Local Taxation upon Current and Future Viability of Pennsylvania Agriculture.” Final report submitted to the Pennsylvania Department of Agriculture. Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, 105 pages (September).

Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082 www.implan.com

Pennsylvania Economy League. 2004. “PA Looking for Property Tax Relief.” IssuesPA website viewed 3 October 2005, < http://www.issuespa.net/polls/point/11839/11881/>.

Waters, E., D. Holland and B. Weber. 1997. “Economic Impacts of a Property Tax Limitation: A Computable General Equilibrium Analysis of Oregon’s Measure 5.” *Land Economics* 73(1):72-89.

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