



POLICY BRIEF

Understanding Measures of Tax Effort and Tax Capacity

APRIL 2015

Many states incorporate measures of tax capacity and tax effort in their school funding formulas so the state government has a rational basis for providing additional aid to school districts with fewer local resources to fund schools. Pennsylvania historically has used the market value of real estate as an important element in measuring school district capacity and tax effort in relationship to capacity. Pennsylvania's market value data have been criticized as inconsistently derived and therefore deeply flawed and unreliable by witnesses testifying in public hearings of the Basic Education Funding Commission. The median household income of districts has been suggested as an intuitively simpler and more reliable measure of tax capacity. CORP's school funding advisors and our staff have produced a technical explanation of the strengths and weaknesses of various measures of tax need and capacity, without taking a position on which method is preferable. David Davare, one of our advisors, and Meghan Rubado, a graduate research assistant assigned to the project, have supplemented the text with spreadsheets and graphs showing how all 500 school districts would be differently affected by the two ways of measuring tax capacity.

Introduction

Tax effort, and the related concept of tax capacity or wealth, are used to compare similar jurisdictions, such as states or school districts, among themselves. Tax capacity compares jurisdictions on their ability to finance public services compared to the average jurisdiction's ability. Tax effort provides a comparison of the actual revenues generated in each jurisdiction relative to its tax capacity.

Tax effort and tax capacity are expressed as indexes or ratios. There is no ideal level of tax effort or capacity. There is simply a statistical average and each jurisdiction's relationship to that amount expressed as an index for ease of understanding. Therefore, a high level of tax effort is not necessarily excessive nor should a low level of tax effort be characterized as insufficient. Effort is measured against capacity, but neither takes need into account.

Data on tax revenues collected are generally available from taxing authorities. The difficult part of measuring tax effort is deciding how to measure the capacity that the actual collections will be compared to. There are several common approaches to this. One approach is to measure capacity based on the ability of citizens to pay the taxes imposed. Another alternative is to measure capacity based on the ability of the jurisdiction to collect taxes, in other words, to measure capacity against the available tax bases.

Capacity Based on Ability to Pay

A variety of variables can be used to measure ability to pay. One example is per capita personal income as defined by the Bureau of Economic Analysis (BEA) which includes wage and salary income, interest, dividends, rental income and proprietor's income as well as government transfer payments such as social security and unemployment compensation. Pension income is reflected in BEA personal income when the employer contribution is made to pension plans on behalf of employees rather than when disbursements to retirees are made. Personal contributions to social insurance programs are subtracted. Capital gains are not included. This measure of personal income represents income of persons from participation in production, transfer payments, and government interest.

BEA personal income also includes income received by non-profit institutions serving households such as religious, medical, educational, legal aid and social welfare organizations, civic and political organizations, recreational and fraternal organizations, and personal business non-profits such as labor unions and professional associations. The BEA produces aggregate and per capita personal income data annually for counties and metropolitan areas. Because it measures returns from participation in production and government transfers, BEA personal income is often used as a proxy for gross state product.

Another measure of ability to pay is the Census Bureau's money income of households estimates. This measure includes earnings, interest, dividends, pension payments, social security income, rent, royalties, income from estates and trusts, child support and alimony, public assistance, educational assistance, and veteran's benefits. The Census Bureau's Small Area Income and Poverty Estimates (SAIPE) are the source of poverty data used to allocate federal Title I funds to school districts. SAIPE also produces median household income estimates.

Many other income measures are available or could be calculated from existing survey data. BEA Personal Income is a measure of income received in the household sector broadly defined. Census household income is more aligned with the cash income readily available to meet current tax obligations. Those data are generally compared on a per capita or household basis. Another way of comparing the ability of a district to pay for the education of its students would be to look at resources available per student (income per student). Making the comparison on a per student basis introduces a proxy variable for need into the calculation of capacity and more closely aligns the ability to pay calculation over time with changes in the need for services.

It is important to recognize that state taxable personal income is broader than the district's wage tax base.

Pennsylvania's personal income aid ratio (PI/AR) compares state taxable personal income per student¹ within a school district to the average district's state taxable personal income per student. This ratio uses taxable personal income to compare ability to pay which ignores some significant sources of income that are not taxable, such as pension income and social security. It is important to recognize that state taxable personal income is broader than the district's wage tax base. In addition to compensation, it includes dividends, interest, net income from business activities and from the sale of property, income from estates and trusts, and gambling winnings. State taxable personal income is being used in this calculation to represent the ability of district taxpayers to pay local school taxes, not the tax base of the wage tax.

Capacity Based on Ability to Collect

An alternative to comparing tax revenues to the ability of citizens to pay is to compare revenues to the average district's ability to raise revenue from a particular tax source or group of tax sources. This method inherently incorpo-

1. Calculation uses WADM – weighted average daily membership. WADM is calculated by weighting half-time kindergarten students at 0.5, full-time kindergarten and elementary students at 1.0, and secondary students at 1.36.

rates the ability of some jurisdictions to obtain revenue from non-resident sources whereas measures of resident household income do not.

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The federal government's Advisory Commission on Intergovernmental Relations (ACIR) produced an index of the fiscal capacity of each state from the 1960s to the 1990s. An index was calculated for most of the commonly used state tax sources as well as an overall index combining all the measured taxes. Each state's effort and capacity indexes were published as well as the overall index of fiscal capacity. The Representative Tax System (RTS) developed by ACIR calculated the revenue that would be generated by each state at the national average tax rate for each tax included in the RTS. The relationship of that amount among states is a measure of the relative strength of the states' tax bases. While this methodology could be adapted for use at sub-state levels of government, it is most useful when comparing levels of government with similar tax structures and similar fiscal responsibilities.

Pennsylvania uses a market value aid ratio (MV/AR) to compare the sales value of taxable property per student within a school district to the average district's taxable property value per student. Property value is particularly relevant to school finance since property values should be closely aligned with assessed values which are the tax base for real property taxes. Real property taxes provide more than 85% of local school district tax revenue in Pennsylvania. However, because there is such a variety of assessment practices within Pennsylvania, assessed values may not change at the same rate as market value. The usefulness of the ratio to measure tax capacity is weakened somewhat because it is not calculated using the tax base or collections, but a proxy variable that may introduce unwanted sources of variance.

Real property taxes provide more than 85% of local school district tax revenue in Pennsylvania. However, because there is such a variety of assessment practices within Pennsylvania, assessed values may not change at the same rate as market value.

Pennsylvania uses the market value/personal income aid ratio (MV/PI AR) to represent the relative wealth or ability of

each school district to finance educational services. This ratio is the sum of 60% of the market value aid ratio (MV/AR) and 40% of the personal income aid ratio (PI/AR). The PI/AR compares fiscal capacity based on ability to pay and the MV/AR compares capacity based on ability to collect the largest local revenue source available to school districts. Both of those ratios are calculated on a per student basis. The MV/PIAR is a method used to incorporate measures of relative tax capacity into the funding calculation. It does not measure tax effort.

Using Tax Capacity to Compare Tax Effort

Comparing the capacity of tax systems from one jurisdiction to another inevitably raises the issue of taxes that are not levied in every district. In the ACIR state Representative Tax System, states that did not levy a sales tax, for example, still had the revenue raising capacity of a sales tax included in their capacity measure. Their sales tax effort would be zero because there was no sales tax revenue collected. However, they may have a higher than average income tax effort. The overall index value comparing revenue capacity from the representative tax system allowed for variations among the states in rates, bases and relative reliance on different tax sources, while still providing a comparative measure of fiscal capacity. Low relative tax effort in a state could reflect a preference for a lower level of government services, or a preference for funding more government services using local tax sources than at the state level, as well as being the result of a lower ability to raise revenue at average tax rates.

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Similar issues arise in comparing local tax systems among jurisdictions that use different types of revenue sources. For example, the School District of Philadelphia receives revenue from sales tax, liquor tax, cigarette tax, the business use and occupancy tax, and the unearned income tax. These taxes are not available to other school districts. Conversely, most school districts can levy a tax on wages and salaries. The Philadelphia wage tax, however, is a City tax. The Philadelphia school district does not receive revenue directly from the Philadelphia wage tax, although the City does occasionally provide grant funds to the school district. At the same time, school districts in close proximity to Philadelphia may not be able to generate significant revenues from a wage tax since state law gives the City of Philadelphia's wage tax on non-residents working in the city primacy over their district of residence's wage tax. The

lack of common tax bases, other than property, between the Philadelphia School District and most other school districts, makes it difficult to construct a single measure of tax effort based on the ability to collect that is an accurate reflection of all districts. For that reason, tax effort calculations are more accurately based on ability to pay when the districts being compared utilize different significant tax sources.

The lack of common tax bases, other than property, between the Philadelphia School District and most other school districts, makes it difficult to construct a single measure of tax effort based on the ability to collect that is an accurate reflection of all districts.

In past years, the Commonwealth used a measure called equalized mills to compare tax effort across school districts. This figure was calculated by dividing all local tax revenues of the school district by the school district's market value and multiplying by 1,000 to express the result as a millage rate. This formulation effectively uses the taxable market value of property in the district as the district's tax base to measure its ability to collect tax revenues from all sources. When districts also have non-property taxes as a revenue source, the use of only market value in this calculation distorts the comparison. Some districts have high market values but relatively low income which can be seen in the differences between their MV/AR and PI/AR. Resort areas may show this pattern. Some high income areas with mainly residential property may not have high market values relative to districts with substantial business property. When all tax revenues will be included in the tax effort calculation, the capacity measure should be based on ability to pay rather than ability to collect. Using the tax base of one tax does not allow the measure to accurately reflect the impact of local choices of tax bases and rates (within the limited options they are authorized). At best, the equalized mill calculation should be limited to property tax revenues and used to compare property tax effort only.

Some high income areas with mainly residential property may not have high market values relative to districts with substantial business property.

The Pennsylvania Association of School Business Officials (PASBO) has proposed a new measure of tax effort using median household income as the ability to pay indicator and calculating tax effort including only the taxes imposed

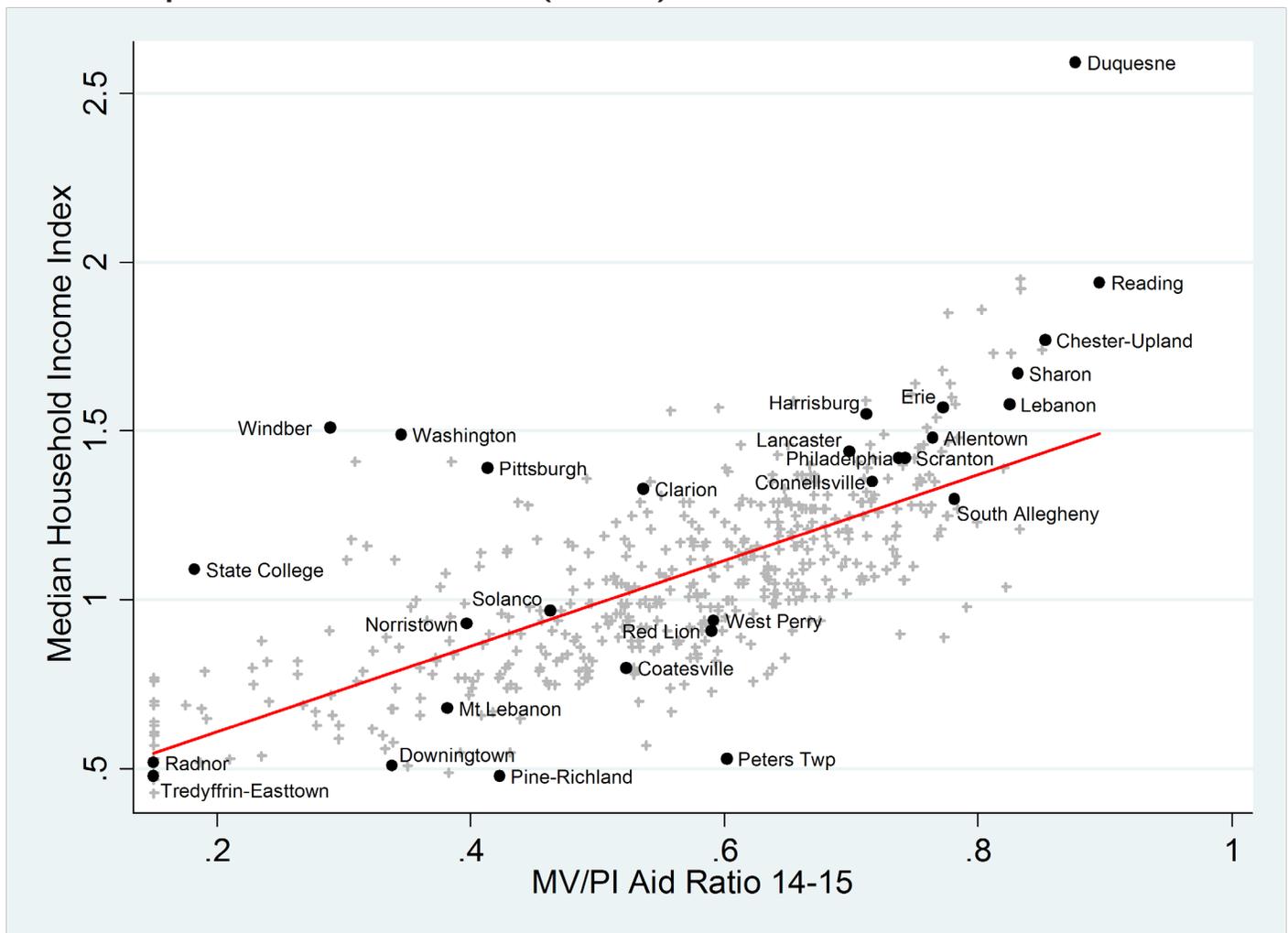
on residential taxpayers. By focusing on only the household sector of the economy this calculation avoids some of the problems inherent in measuring tax effort of districts with dissimilar tax structures. It also sidesteps the widely acknowledged inadequacies of determining market value in Pennsylvania. PASBO argues that median household income is an intuitively easier measure to obtain and understand and therefore increases the transparency of this component of a school funding formula. However, the exclusion of significant business tax sources is a weakness that leaves the calculation of tax effort incomplete at best and potentially misleading. In general, districts that use non-residential tax sources may appear to have a lower effort relative to those without such access who would exhibit similar effort on a broader measure. Districts that avoid taxing business sources available to them might appear to have higher effort than they would if a similar amount of revenue were collected across all available tax bases. Since the majority of districts have very limited access to non-residential tax sources, and the uniform rates

on business and residential property ensure at least a superficial equality of effort on the property tax, the distortions resulting from disregarding business tax sources will affect the school districts that are authorized to use

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a broader array of tax sources. To the extent that they utilize non-residential sources, their total tax effort will not be reflected in the effort factor. Forty-six districts collect mercantile taxes, 31 collect business privilege taxes, and 35 collect amusement taxes. As described above, Philadelphia

Figure 1
Relationship between MV/PI Aid Ratio (2014-15) and Median Household Income Index



Source note: Median household income (MHI) index is derived from U.S. Census Bureau MHI data (2013 5-year ACS estimates), which were gathered for each district and placed into the following formula: $1 / (\text{district MHI} / \text{state MHI})$.

also collects a significant amount of revenue from non-residential taxes. If a tax effort calculation will be used, all local school tax collections could be included in the tax effort adjustment. There is no reason to leave out some revenues that school districts are collecting if the purpose is to compare tax effort across districts.

Figure 1 illustrates graphically how school districts are differently affected by using median income rather than MV/PI as a measure of tax capacity. In the aggregate, the two measures are moderately correlated ($r^2=.53$). To the extent that state aid attempts to compensate districts with lower tax capacity, school districts above the regression line would be advantaged, and below the line disadvantaged, by substituting median household income as a measure of tax capacity. Although Figure 1 only identifies some of the outlier districts to facilitate legibility, the data underlying this graph for all 500 school districts is available through the Center on Regional Politics website (temple.edu/corp). Policymakers will have to evaluate whether the intuitive simplicity of the median household income measure and its superior precision as a dataset outweighs its technical weaknesses in omitting business property and the political challenges often inherent in changing the status quo.

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Finally, it is important to keep in mind that most of the measures of tax effort and capacity we have discussed are independent of fiscal need. Differences in tax effort may be due to differing capacity or may reflect preferences for a higher or lower level of public services. Relative capacity ratios, such as the proposed household income aid ratio can, on their own, reflect differences in ability to raise revenues without incorporating the effect of preferences of local districts for higher or lower service levels. Tax effort is not used as a component of school finance in all states. “[Twenty-nine] states, including Pennsylvania’s neighbors Delaware, Maryland, New York, and West Virginia, use a tax effort factor in their formula” (Education Law Center 2013:6). Other neighboring states like Ohio and New Jersey do not.

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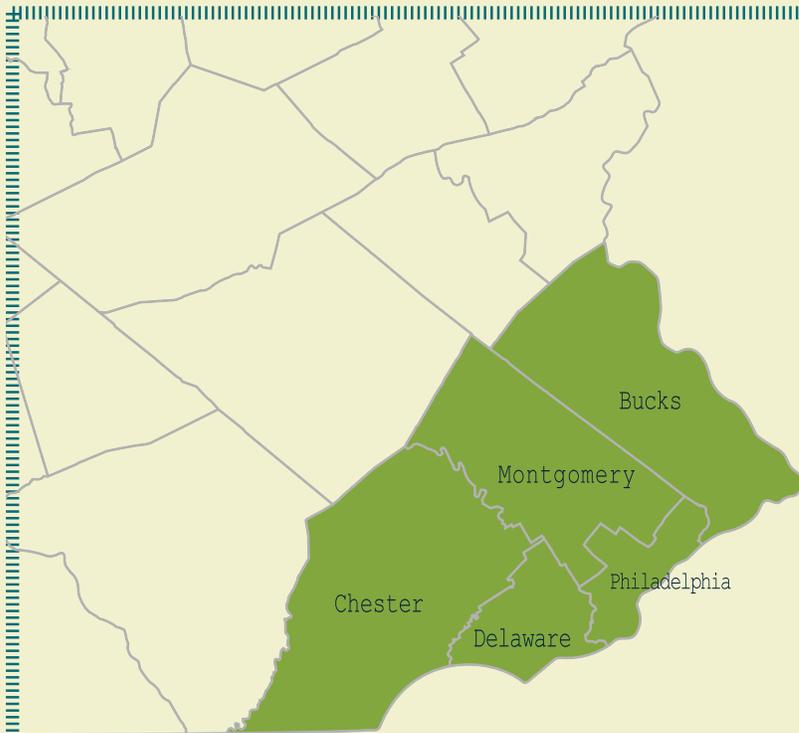
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