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To: Christopher St. John, Maine Center for Economic Policy
Cc: Robert Tannenwald, Director
From: Matthew Nagowski, Research Assistant and Darcy Rollins Saas, Policy Analyst
Re: Measuring Maine's tax burden
Date: October 6, 2006

You requested advice on how to best assess Maine's tax burden. This memo presents a variety of tax burden indicators for Maine and the New England states, as well as for four other states—Idaho, Iowa, Nebraska, and Wisconsin—that are similar to Maine in their demographic and fiscal characteristics.¹ We find these indicators useful in discussing the subject of a state's tax burden. They fall along a continuum of three criteria: whether a measure is simple (easy to calculate and understand), specific (measures the burden of specific groups), and comprehensive (takes into consideration the perspective of all potential revenue bases).

On most indicators, Maine's tax burden is high relative to New England, its peer states, and the nation. However, taken together, these measures demonstrate that Maine's tax burden may not be as high as it seems at first glance. For instance, one simple measure of tax burden—state and local taxes as a percentage of personal income—suggests that Maine's tax burden is 20 percent higher than the national average. A more comprehensive measure of a state's tax burden indicates that Maine's tax burden is 12 percent higher than the national average.

Finally, meaningful dialogue about tax burden indicators needs to be placed within the context of how revenues are spent relative to established public priorities, as well as the adequacy and efficiency of public service provision within a state.

Recent studies

Two recent papers comprehensively investigate Maine's tax burden and discuss the methodology and shortcomings of different measures of tax burden. We highly recommend that readers interested in tax burden analysis, and specifically Maine's tax burden, review the following papers:

- *Maine's Tax Burden: History and Projections*. March 2006. Maine Office of Fiscal and Program Review.

¹ Iowa, Nebraska, and Wisconsin are all very similar in their ability to raise revenues and underlying need for public service provision (Yilmaz et al.) Idaho is slightly more differentiated than Maine in terms of its fiscal characteristics but is often pointed to by analysts as a good comparison state due to similarities in size, climate, and rural population.

- Murray, Matthew. *A Profile of the Maine State and Local Tax System*. The University of Tennessee. Prepared for the Brookings Institution Metropolitan Policy Program, 2006.

Simple measures of overall tax burden

In general, the concept of tax burden refers to revenues raised relative to state's ability to pay for the revenues.

A July 2006 memo by an NEPPC staff member reviews some potential aggregate measures for how revenues are raised and of a state's ability to pay for them and assesses the shortcomings of each (Nagowski, 2006).

One of the measures that the memo considers is total state and local taxes as a percentage of personal income. This measure is commonly used by policy analysts to gauge what percentage of a state's income is raised by state and local taxation policies.

However, the memo maintains that, although several measures are commonly used and every approach has strengths and weaknesses, the best *simple* measure of overall state tax burden is widely considered to be total own-source revenue as a share of personal income.

A main advantage of measuring tax burden using total own-source revenues as a percentage of personal income is that it includes all sources of state and local revenue, not just taxes. This is important due to the fact that state and local governments are increasingly relying on user charges and fees as a revenue source.

Moreover, another advantage of this measure is its simplicity. It is easy to use and to understand, and it can be calculated with less of a delay because the data is made available on a timely basis. While simplicity should not be the only criterion for selecting an indicator of tax burden, being able to replicate, continually update, and communicate results easily has obvious appeal in the public policy process.

Other simple measures of tax burden gauge the impact of revenue collections on a per capita basis. This measure is included in a recent report on tax burdens published by Maine's Office of Fiscal and Program Review. Analysts often use per capita tax burdens to assess how a state's overall level of taxation has changed over time. However, its use for state to state comparisons of burden is limited because they do not consider the ability of states to pay for revenues raised.

Table 1 compares per capita state and local taxes and own-source revenues with state and local taxes and own-source revenues as a percentage of personal income. It's important to note that the relative tax burden of states differs once you take into consideration each state's ability to pay. Moreover, while Maine's state and local tax burden (measured as a percentage of personal income) is 21 percent higher than the national average, Maine's burden calculated using total own-source revenues as a percentage of personal income is 14 percent higher than the national average, and only 9 percent higher than its peer group states.

Specific measures of tax burden

While a simple measure of aggregate tax burden represents the ability of a state to afford its revenues, it presents a somewhat crude notion of tax burden, as it fails to identify *who* is burdened by the taxes of a state and its local governments. More specific measures of tax burden are able to assess and compare the average tax burden realized by different types of households or business across states.

Moreover, many measures of tax burden fail to take into account the exportability of taxes. States like Maine are able to raise a sizeable amount of revenue off of nonresident tourists. Since nonresidents pay a significant portion of taxes, a simple burden measure may not be the most accurate measure of how much residents are burdened by a state's revenue policies. The Brookings Institution recently commissioned a paper that explicitly explores Maine's tax exportability (Murray, 2006b). By focusing on the average tax burden experienced by a state's households or businesses, measures of tax burden are able to effectively exclude those revenues that are exported to nonresidents. Further, more specific measures of tax burden enable policy makers to identify which groups are most burdened and potentially fashion better policy responses.

Household tax burden

The government of the District of Columbia publishes tax burdens for a hypothetical family of four across different income levels for the largest city in each state. These measures take into consideration the major taxes levied upon hypothetical households in each state (the personal income tax, the general sales tax, the property tax, and the auto excise tax).

As Table 2 shows, households in Maine's largest city, Portland, faced a level of tax burden that is higher than the national median in 2004. Even so, the tax burden that fell upon Maine households was lower than their peers in places like Bridgeport, Connecticut and Providence, Rhode Island. Moreover, the relative burden experienced by a household increases with household income, indicating a progressive tax structure for Portlanders.

Business tax burden

Indicators of tax burden are typically employed in discussions about state business competitiveness. Research suggests that taxes are not the only factor in business location decisions; spending and the quality of infrastructure, skilled labor, and other factors are also important. To the extent that taxes do matter, however, their direct impact on business profitability is likely most important (Tannenwald, 1996).

Tannenwald (2004) argues that two relatively simple and accurate measures of business tax burden are the ratio of business taxes to personal income and business taxes as a percent of business profits. Table 3 reports each state's value and rank for both measures in FY2000, the last year the calculation was performed. In that year, Maine was ranked 10th in the nation on business taxes as a share of personal income, higher than all New England and peer states. However, Maine ranked lower (13th) than both Rhode Island (10th) and Vermont (11th) on business taxes as a share of business profits with 40.5 percent of business profits going to business taxes. The high percentage of business profits that businesses pay in taxes seems extreme—as high as 84.4 percent in Alaska—but should be interpreted with the understanding that a majority of the taxes is shifted onto consumers.

Furthermore, Maine's Department of Revenue Services biennially reports on the incidence of Maine's taxes to the state legislature. The report presents a thorough analysis of the economic incidence of Maine's taxes through economic models and simulations that estimate the amount of taxes a Maine household or business actually pays, accounting for various types of tax shifting, as well as the tax rate and burden for different income groups. The Maine Revenue Services study found that, in 2003, the effective tax rate of the average Maine individual was 9.9 percent (see Table 4). Unfortunately, however, state-to-state comparisons are not available.

A more comprehensive measure of tax burden

A new report that will be soon be released by the Center in conjunction with the Urban/Brookings Tax Policy Center in Washington, D.C. explores a more comprehensive measure of tax burden for fiscal year 2002 (Yilmaz, et al., 2006). The report calculates each state's revenue capacity—how much a state would have raised in revenues off of its underlying revenue bases had it adopted a nationally representative set of revenue policies. In doing so, the report takes into consideration all of the potential revenue bases in a state and takes into account the fact that for each state, some economic bases are more plausible sources of revenue than others. In all, 27 different revenue bases are estimated.

Comparing a state's actual revenues to its hypothetical revenue capacity provides a comprehensive assessment of a state's revenue burden that takes into account its ability to raise revenues relative to national averages in a more nuanced and data-intensive way. This is what is known as revenue effort.

Table 4 presents a states revenue capacity and revenue effort for FY2002. Each measure is indexed to the national average. Analysis revealed that, compared to a national average, Maine's per capita revenue base was slightly below average, and the per capita revenues raised from that base were slightly above average. In FY2002, Maine had a revenue capacity 7 percent lower than the national average and exerted a revenue effort 12 percent higher than a nationally representative effective tax rate. While many of Maine's New England peers exerted a revenue effort lower than the national average, they also enjoyed a much higher level of revenue capacity than Maine. Among the cohort of states that have been identified as similar to Maine in terms of their underlying fiscal situation, most also exerted an above-average level of revenue effort.

Expenditures matter as well

A discussion of tax burden is not complete without assessing the expenditure side of a state's fiscal position. In fact, the most comprehensive assessment of Maine's tax burden would incorporate measures of how efficiently public money is spent to provide for the state's unique needs and policy goals. The measures of tax burden that are included in this memo do not take into consideration the individual characteristics that each state is faced with. For instance, Maine's relatively rural population and cold climate may require it to spend more than the national average on certain types of expenditures.

Moreover, certain expenditures—those that invest in a state's infrastructure, human capital, or research and development climate—are able to dynamically change a state's economic base, and thus

its levels of tax burden over the long run. For further discussion on measuring a state's underlying need for expenditures, please see Yilmaz et al.

Suggested reading

Murray, Matthew (a). *"A Profile of the Maine State and Local Tax System."* The University of Tennessee, 2006.

Murray, Matthew (b). "Exporting State and Local Taxes: An Application to the State of Maine." The University of Tennessee, 2006.

Maine's Tax Incidence Study: A Distributional Analysis of Maine's State and Local Taxes. Maine State Revenue Services.

Nagowski, Matthew. "Measures of State and Local Tax Burden." New England Public Policy Center at the Federal Reserve Bank of Boston, July 2006.

Tannenwald, Robert. "Massachusetts Business Taxes: Unfair? Inadequate? Uncompetitive?" Federal Reserve Bank of Boston, 2004.

Tannenwald, Robert. "State and Business Tax Climate: How Should It Be Measured and How Important is it?" *New England Economic Review*, 1996.

Tax Rates and Tax Burdens in the District of Columbia – A Nationwide Comparison. Government of the District of Columbia, August 2005.

Yilmaz, Yesim et al. "Measuring Fiscal Disparities across the U.S. States: A Representative Revenue System/Representative Expenditure System Approach Fiscal Year 2002." Urban/Brookings Tax Policy Center and the New England Public Policy Center at the Federal Reserve Bank of Boston, 2006.

Table 1: State and local taxes and own-source revenues, fiscal year 2004

| State and local own-source revenues | | | | |
|-------------------------------------|----------------|-----------|----------------------------------|----------|
| | Per capita | Rank | As percentage of personal income | Rank |
| Connecticut | \$6,118 | 6 | 13.9 | 47 |
| Maine | \$5,209 | 14 | 17.8 | 8 |
| Massachusetts | \$5,781 | 8 | 14.2 | 44 |
| New Hampshire | \$4,534 | 34 | 12.8 | 51 |
| Rhode Island | \$5,228 | 13 | 15.7 | 25 |
| Vermont | \$5,158 | 16 | 16.7 | 13 |
| Idaho | \$4,263 | 41 | 16.2 | 18 |
| Iowa | \$4,780 | 29 | 16.1 | 21 |
| Nebraska | \$5,242 | 12 | 16.8 | 12 |
| Wisconsin | \$5,147 | 17 | 16.4 | 16 |
| United States | \$5,010 | | 15.6 | |

| State and local taxes | | | | |
|-----------------------|----------------|-----------|----------------------------------|----------|
| | Per capita | Rank | As percentage of personal income | Rank |
| Connecticut | \$4,927 | 3 | 11.2 | 12 |
| Maine | \$3,794 | 11 | 13.0 | 4 |
| Massachusetts | \$4,209 | 6 | 10.4 | 33 |
| New Hampshire | \$3,145 | 27 | 8.9 | 48 |
| Rhode Island | \$3,897 | 8 | 11.7 | 8 |
| Vermont | \$3,685 | 16 | 11.9 | 6 |
| Idaho | \$2,758 | 42 | 10.5 | 25 |
| Iowa | \$3,059 | 29 | 10.3 | 34 |
| Nebraska | \$3,620 | 17 | 11.6 | 9 |
| Wisconsin | \$3,722 | 13 | 11.9 | 7 |
| United States | \$3,457 | | 10.7 | |

Source: U.S. Census, Bureau of Economic Analysis

Note: In order to better approximate a state personal income during a fiscal year, personal income for the two calendar years that span a fiscal year is averaged according to the start and end dates for a fiscal year. Such a practice is obviously not perfect but helps to obtain more precise estimates.

**Table 2: Estimated burden of major state and local taxes
for a hypothetical family of four, 2004, largest city in each state**

| Household income | \$25,000 | | \$50,000 | | \$100,000 | |
|------------------|----------|------|----------|------|-----------|------|
| | Percent | Rank | Percent | Rank | Percent | Rank |
| Bridgeport, CT | 11.5 | 2 | 11.6 | 4 | 14.6 | 1 |
| Portland, ME | 7.9 | 12 | 10.0 | 11 | 11.9 | 7 |
| Boston, MA | 7.4 | 21 | 9.4 | 17 | 10.1 | 18 |
| Manchester, NH | 7.7 | 18 | 7.0 | 39 | 6.8 | 44 |
| Providence, RI | 9.2 | 7 | 11.0 | 6 | 12.2 | 4 |
| Burlington, VT | 6.9 | 31 | 8.1 | 26 | 8.9 | 33 |
| Boise, ID | 4.9 | 45 | 7.3 | 34 | 9.6 | 25 |
| Des Moines, IA | 7.2 | 24 | 8.8 | 20 | 9.7 | 23 |
| Omaha, NE | 7.7 | 15 | 8.7 | 22 | 10.2 | 17 |
| Milwaukee, WI | 7.7 | 17 | 10.2 | 10 | 11.2 | 11 |
| US Median | 7.2 | | 8.1 | | 9.4 | |

Source: *Tax Rates and Tax Burdens in the District of Columbia – A Nationwide Comparison*.

Table 3: Measures of business tax burden, fiscal year 2000

| | Business taxes as a percent of business profits | | Business taxes as a percent of personal income | |
|---------------|--|------|--|------|
| | Percent | Rank | Percent | Rank |
| Connecticut | 32.5 | 40 | 4.5 | 28 |
| Maine | 40.5 | 13 | 5.9 | 10 |
| Massachusetts | 27.5 | 49 | 3.7 | 47 |
| New Hampshire | 35.9 | 25 | 4.7 | 20 |
| Rhode Island | 43.2 | 10 | 5.1 | 16 |
| Vermont | 42.5 | 11 | 5.3 | 14 |
| Idaho | 38.5 | 18 | 4.6 | 22 |
| Iowa | 32.5 | 39 | 4.4 | 29 |
| Nebraska | 36.7 | 22 | 4.3 | 38 |
| Wisconsin | 32.9 | 36 | 4.3 | 37 |
| US | 35.8 | | 4.7 | |

Source: Tannenwald, Robert. "Massachusetts Business Taxes: Unfair? Inadequate? Uncompetitive?" Federal Reserve Bank of Boston, 2004.

Table 4: Effective state and local tax rate in Maine, by income level, 2003

| Income decile | Individual | Business | Total |
|----------------|------------|----------|-------|
| First & second | 15.1% | 3.0% | 18.1% |
| Third | 8.8% | 1.8% | 10.6% |
| Fourth | 9.5% | 2.1% | 11.6% |
| Fifth | 10.2% | 2.1% | 12.3% |
| Sixth | 10.6% | 2.1% | 12.7% |
| Seventh | 10.4% | 2.0% | 12.4% |
| Eighth | 10.0% | 1.9% | 11.9% |
| Ninth | 9.8% | 1.8% | 11.6% |
| Tenth | 9.4% | 1.5% | 10.9% |
| Total | 9.9% | 1.8% | 11.7% |

Source: Maine Revenue Services

Table 5: Revenue capacity and revenue effort, fiscal year 2002

| | Per capita revenue capacity | Index of revenue capacity | Rank | Per capita actual revenues | Index of revenue effort | Rank |
|---------------|-----------------------------------|---------------------------------|------|----------------------------------|-------------------------------|------|
| United States | \$4,659 | 100 | | \$4,659 | 100 | |
| Connecticut | \$6,275 | 135 | 1 | \$5,446 | 87 | 46 |
| Maine | \$4,338 | 93 | 29 | \$4,844 | 112 | 7 |
| Massachusetts | \$6,001 | 129 | 2 | \$5,179 | 86 | 47 |
| New Hampshire | \$5,456 | 117 | 6 | \$4,142 | 76 | 50 |
| Rhode Island | \$4,699 | 101 | 18 | \$4,627 | 98 | 29 |
| Vermont | \$4,652 | 100 | 20 | \$4,528 | 97 | 32 |
| Idaho | \$3,919 | 84 | 43 | \$3,959 | 101 | 23 |
| Iowa | \$4,362 | 94 | 27 | \$4,556 | 104 | 14 |
| Nebraska | \$4,428 | 95 | 24 | \$4,586 | 104 | 14 |
| Wisconsin | \$4,480 | 96 | 23 | \$4,837 | 108 | 8 |

Source: Yilmaz et al. "Measuring Fiscal Disparities across the U.S. States: A Representative Revenue System/Representative Expenditure System Approach Fiscal Year 2002." Urban/Brookings Tax Policy Center and the New England Public Policy Center at the Federal Reserve Bank of Boston. Forthcoming.