STATE TAX RANKINGS: WHAT DO THEY AND DON’T THEY TELL US?

John E. Anderson

This study examines some of the prominent state tax rankings that have been developed in recent years, with a focus on the indices that are specifically attempting to measure state and local taxes in some way. Each index is reviewed to determine what aspect of state tax systems are being measured and how. The article begins with a theoretical framework that informs the question of what tax rates should be measured, depending on the purpose of the intended index. It is important to distinguish, for example, whether tax rates are measured as average tax rates, marginal tax rates, statutory tax rates, or effective marginal tax rates. After analysis of the way several prototypical indices are constructed, this study also considers whether the indices actually have economic explanatory power. The Tax Foundation’s State Business Tax Climate Index is used as an explanatory variable in several estimated state GDP growth models. While the index has a statistically significant effect on state GDP growth in simple models, once more state-specific factors are included in the growth models the significance of the index disappears. Research suggestions are made for techniques that can be used to more effectively assess the explanatory power of state tax rankings. The conclusion of the analysis is that caution on the use and interpretation of such indices is warranted.

Keywords: state taxes, tax rankings, business climate

JEL Codes: H71, H21, H25

I. INTRODUCTION

Hardly a legislative hearing on a state tax policy issue goes by these days without a legislator or staffer trotting out the latest state ranking of taxes or business climate to make a case for a state policy change. With a wide variety of rankings being produced regularly, there is no shortage. Legislators are bound to find something they like at the rankings smorgasbord. As Kolko, Neumark, and Mejia (2011, p. 5) state in their review of eleven business climate indices, “… nearly every state could be praised
for having a good business climate, or criticized for having a bad one.” Eathington, Todd, and Swenson (2005, p. 1) refer to this situation as a, “storm of business climate rankings,” in their review of recent rankings and their disparate results. The purpose of this paper is to review state tax rankings with a particular focus on what aspects of state tax systems they are measuring and how they do so. Such an understanding of the indices will help guide policy makers in understanding what the indices are telling them (and not telling them) about state tax policy.

This study focuses on the indices that are specifically attempting to measure state and local taxes in some way.\footnote{Anderson (2008) conducts a similar analysis of popular fiscal indicators used in cross-country comparisons.} In doing so, an important question to consider is what tax rates really matter: average tax rates, marginal tax rates, statutory tax rates, or effective marginal tax rates? If the question is what should be measured, the answer is that it depends on the purpose. A ranking of states such as that constructed by the Census Bureau simply reports the overall level of state (or state and local) taxation on a per capita basis. That type of ranking is useful to compare the overall size of the state government across states. Some rankings measure the total tax divided by personal income, which is a measure of the average tax rate. This measure is useful for understanding the overall tax burden, but does not yield information on the effect of the tax system on marginal earnings or investments. Other rankings use the top marginal tax rate, which reflects the marginal impact for taxpayers in the top bracket, but does not account for many other features of the tax system (such as exemptions, deductions, credits, and phase-outs) that may increase or decrease the effective marginal tax rates of high income taxpayers as well as others. Rankings that simply use the top marginal tax rate present very limited information about each state’s tax situation. Other rankings, such as those compiled by the Tax Foundation, use a combination of tax system characteristics, including the number of tax brackets, the top rate, and measures of the broadness of the tax base. Nonetheless, these rankings measure statutory rates, not effective rates. The Ernst and Young/COST business tax competitiveness index, as described in Phillips, et al. (2011) and Cline, Phillips, and Neubig (2011), is the principal index that explicitly measures the marginal tax burden on new investment in each state, rather than measuring the average tax burden imposed on all firms. Ernst and Young/COST index computes an effective tax rate (ETR) on new investment for various types of facilities in all fifty states.

A. Taxes and the Broader Concept of Business Climate

State rankings are usually produced in order to measure aspects of the general business climate or specific aspects of the tax climate of states. In this regard it should be recognized that the business climate of states is affected by a variety of factors, only some of which can be influenced by public policy. Carlin and Seabright (2007) ask the legitimate question of which parts of the business climate state policy should try to fix. Obviously, there are aspects of business climate such as proximity to markets (either
factor or product markets) that state policy cannot alter. Furthermore, business climate factors such as weather, environmental amenities, and other factors also cannot be altered by state policy. Bartik (1994) makes the case that local economic development policy can have an impact on employment, and therefore justify a role for state and/or local governments in affecting the business climate. Anderson and Wassmer (2000) have assessed the efficacy of local economic development incentives that attempt to alter the business climate in a metropolitan area and found that they may only alter economic outcomes for a short time as policy innovations are diffused across local jurisdictions and their impact dissipates.

Kolko, Neumark, and Mejia (2011) analyzed 11 business climate indices using correlations and cluster analysis. They found that among 10 of the indices there are two distinct clusters: a productivity cluster and a taxes-and-costs cluster. The one index not covered in these two clusters is the Fiscal Policy Report Card on the Nation’s Governors, as reported in Edwards (2010). That index puts some weight on taxes, according to Kolko, Neumark, and Mejia (2011), but it also places a relatively heavy weight on a size of government measure that results in the index being “quite independent” of the other five indices in the cluster of indices that reflect taxes and costs. Table 1 lists the five indices in each of the two clusters.

It should be noted that the rankings examined in this paper generally take into consideration the standard features of each state’s tax system that apply broadly to taxpayers. Special tax incentives that reduce taxes for selected taxpayers are not taken into account. In this regard, tax abatements, enterprise zone incentives, and other negotiated tax breaks are not considered in many of the rankings. A notable exception is the new Tax Foundation (2012) study that computes costs for prototypical firms both with and without special incentives. Researchers differ in their treatment of these special incentives, as to whether to include or exclude them from their analysis; see Dalehite, Mikesell, and Zorn (2005) for a survey of the pervasiveness of tax abatements.

B. What Taxes Matter?

1. Taxes and the User Cost of Capital

Hassett and Hubbard (2002) provide an overview of the now classic Hall and Jorgenson (1967) model of the effect of tax policy on investment. According to that theory of investment, firms take into account the full cost of owning capital assets, known as the user cost of capital $C_r$, which can be written as

\[
C_r = q_t (p + \delta - \Delta p / p) \left[ \frac{1 - t_c (z - ITC)}{1 - t_c} \right],
\]

where $q_t$ is the price of the new capital good at time $t$, $\rho$ is the required rate of return for investors, $\delta$ is replacement rate or depreciation, $\Delta p/p$ represents the capital gain or loss on the asset due to a change in its market value, $t_c$ is the tax rate applied to corporate
### Table 1

#### Business Climate Indices by Type and Source

<table>
<thead>
<tr>
<th>Productivity Cluster</th>
<th>Index Name</th>
<th>Institution Producing the Index and Years Available</th>
<th>Taxes and Costs Cluster</th>
<th>Index Name</th>
<th>Institution Producing the Index and Years Available</th>
</tr>
</thead>
</table>

Source: Updated from Kolko, Neumark, and Mejia (2011).
<table>
<thead>
<tr>
<th>Productivity Cluster</th>
<th>Index Name</th>
<th>Index Components and Methodology</th>
<th>Taxes and Costs Cluster</th>
<th>Index Name</th>
<th>Index Components and Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>State New Economy Index</td>
<td>Index is based on a weighted average of five major components; no tax sub-component is used</td>
<td>State Business Tax Climate Index</td>
<td>Index based on five major tax components, weighted, encompassing a total of 118 variables; tax components include multiple characteristics of individual income tax, sales tax, corporate income tax, property tax, and unemployment insurance tax systems. (Larger values of the index indicate better business climates.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development Report Card for the States — Performance</td>
<td>Index based on equally weighted average of sub-components covering measures of employment, earnings and job quality, equity, quality of life, resource efficiency, and trend indicators</td>
<td>Small Business Survival Index</td>
<td>Index based on 44 measures of government related costs that affect small business and entrepreneurs; 19 tax components are generally measured as top rates applied for each type of tax; property, sales, gross receipts, and excise taxes are measured as a share of personal income; other tax system characteristics are captured with dummy variables. (Larger values of the index indicate less friendly states.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development Report Card for the States — Development Capacity</td>
<td>Index based on equally weighted average of sub-components covering measures of human resources, financial resources, infrastructure resources, amenity resource and natural capital, innovation assets, and trend indicators</td>
<td>Cost of Doing Business Index</td>
<td>Index is based on weighted average of five components; tax component is measured as the annual state tax revenue as a share of state personal income and receives an equal 20% weight. (Larger values of the index indicate higher cost of doing business.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index Name</td>
<td>Index Components and Methodology</td>
<td>Index Name</td>
<td>Index Components and Methodology</td>
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<td>--------------------------------------------------------------------------------------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Development Report Card for the States — Business Vitality</td>
<td>Index based on equally weighted average of sub-components covering measures of competitiveness of existing businesses, entrepreneurial energy, and trend indicators</td>
<td>U.S. Economic Freedom Index</td>
<td>Index is based on weighted average of five components encompassing a total of 209 variables; fiscal sector has 51 indicators that are used to compute each state’s fiscal score ranking; fiscal sector score is computed using multiple characteristics of individual income tax, sales tax, corporate income tax, property tax, and other tax systems. (Larger values of the index indicate greater economic freedom.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Competitiveness Index</td>
<td>Index based on eight components equally weighted; government and fiscal policy component is measured using six sub-components of which the tax component is total state and local taxes relative to state income per capita</td>
<td>Economic Freedom Index of North America</td>
<td>Index is based on 10 components equally weighted; tax sub-components include total tax revenue as a percent of GDP, top marginal income tax rate and the threshold at which it applies, indirect tax revenue as a percent of GDP, and sales taxes collected as a percent of GDP. (Larger values of the index indicate greater economic freedom.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s summary based on index documentation.
profit, $z$ is the present value of a dollar’s worth of depreciation allowance, and $ITC$ is the investment tax credit.

The corporate tax rate affects the user cost of capital primarily in two ways. First, without deductions for either depreciation or interest paid, a higher corporate tax rate has the effect of increasing the necessary before-tax marginal product of capital to yield an acceptable after-tax rate of return for investors. This effect increases the user cost of capital. Second, a higher corporate tax rate also has the effect of increasing the value of the deduction for depreciation. This effect reduces the user cost of capital. In the equation above, it is the multiplicative term $(1 - tz)/(1 - t)$ that incorporates both of these effects. On balance, whether the cost of capital rises or falls with an increase in the corporate tax rate depends upon whether expensing is permitted (i.e., on whether $z < 1$ or $z = 1$). In the special case of expensing ($z = 1$), the multiplicative term, which incorporates the two effects, becomes unity implying that the two effects exactly offset one another.

Table 3 provides the Hassett and Hubbard (2002) summary of the effects of various tax rate changes on steady state measures of the economy. This table also provides the motivation for why state tax rankings are so popular. If tax rates can affect the capital stock and output, for example, then they also affect employment. In the aggregate, policymakers should care about corporate tax rates, personal tax rates, capital gains tax rates, and investment incentives.

But, at the subnational level the policy implications are different. Courant (1994) makes the case that the appropriate permanent tax policy is to set taxes on mobile capital at the benefit level. He also argues that tax abatements are a reasonable temporary policy where pre-existing taxes on mobile capital are in excess of benefit taxes. If that is the case, the relevant question is whether any of the state tax rankings tell us about the benefit level of taxation — for either individuals or businesses? The short answer to this question is no.

C. What Tax Rates Matter?

Taxes may matter for economic development and thereby employment. If so, what tax rates really matter? Is it the marginal tax rate (MTR), the average tax rate (ATR), the marginal effective tax rate (METR), the marginal excess burden (MEB), the marginal cost of public funds (MCPF), or some other measure of the tax rate that is most important? Economists generally argue that what matters is what happens on the margin, so that the generally preferred measures are marginal tax rates. While the average tax rate tells us something about tax burden relative to income (or whatever measure of the tax base is relevant), it is the marginal tax rate that tells us how the tax system is influencing the decisions of individuals and firms on the margin.

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2 There is a third effect, as noted by Hassett and Hubbard (2002). A higher corporate tax rate increases the value of the interest deduction thereby reducing the cost of debt financing and thereby the user cost of capital. This effect is outweighed, however, by the first effect listed above for all reasonable parameter values.
### Table 3
Qualitative Effects of Tax Rate Changes on Steady State Measures

<table>
<thead>
<tr>
<th>Tax rate change:</th>
<th>Capital stock (K)</th>
<th>Output (Y)</th>
<th>Consumption (C)</th>
<th>$q = \frac{1 - t_p}{1 - t_g}$</th>
<th>Cost of capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate tax rate $t_c$</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Personal tax rate $t_p$</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>0</td>
</tr>
<tr>
<td>Capital gains tax rate $t_g$</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Investment incentives $\Gamma$</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Source: Hassett and Hubbard (2002), Table 1, p. 1300.
Fullerton (1986) explains how the METR was developed to analyze the effects of taxes on different assets or industries. The METR is measured as the proportional difference between the pre-tax and post-tax rates of return. He also explains that while the original cost of capital equation focused attention on aggregate capital formation, when disaggregated data are available from which METRs can be computed, the focus changes to the allocation of capital. Furthermore, the effective tax rate concept has been applied to state corporate taxes, property taxes, and personal taxes on various income sources (interest, dividends, and capital gains).

While the METR approach has some clear advantages over alternative measures, Fullerton (1986) identifies several problems inherent in computing and using METRs:

- METRs are sensitive to choices about the after-tax rate of return, the assumed rate of inflation, the derivation of personal tax rate parameters, and the nature of expectations
- Investors are assumed to believe the tax regime remains fixed
- Firms are assumed to minimize taxes in all respects
- Firms are assumed to receive full benefit of credits and deductions on their marginal investments
- There is no consensus on the appropriate treatment of risk in the model

On balance, however, Fullerton (1986, p. 291) argues that METRs or measures of the cost of capital, “… provides the only forward-looking measure of incentives that captures the net effects of truly major tax provisions such as statutory tax rates, investment tax credits, and depreciation allowances.” Despite problems in the computation of METRs, he argues that abandonment of these measures would leave the field of tax policy analysis in an even more vulnerable position were we to rely on more problematic concepts such as the average effective tax rate (AETR).

Goolsbee (2000) presents evidence that measurement error in the cost of capital can be important. He uses panel data for various types of capital equipment and provides evidence of measurement error in the tax component of the user cost of capital. That measurement error accounts for approximately 20 percent of the variance in the tax term. When he makes corrections for the measurement error using instrumental variables, he finds that taxes are significant in explaining both capital goods prices and investment.

II. STATE TAX RANKINGS

This section provides an overview of the five indices categorized by Kolko, Neumark, and Mejia (2011) in their taxes-and-costs cluster, as well as the basic rankings available from the Census Bureau and the Ernst and Young/COST estimates of ETRs. In each case the index is described with a focus on the tax content of the index. Emphasis is placed on the Ernst and Young/COST ETR estimates and the Tax Foundation’s State Business Tax Climate Index as two important prototype examples.
A. Census Bureau

The U.S. Census Bureau publishes a ranking of states by both total state taxes and per capita taxes. The ranking by total state taxes reflects the relative sizes of the state economies (measured by state GDP), as well as their tax structures. California, New York, Florida, Texas and Pennsylvania are the top five, reflecting their large sizes. At the bottom of the ranking are Montana, Alaska, Wyoming, North Dakota, and South Dakota. The ranking by total tax per capita adjusts for population. That ranking puts Vermont, Hawaii, Wyoming, Connecticut, and Minnesota at the top. At the bottom of the per capita ranking are Missouri, Colorado, New Hampshire, Texas, and South Dakota.

These rankings have the advantage of being based on actual tax collections, as reported to the Census Bureau. While these census rankings are useful in describing total state taxes and per capita taxes, they have limited usefulness in informing public policy regarding economic development or other policy objectives. State and local government data are also collected by the Census Bureau, which can form the basis of rankings that combine all sub-national levels of government.

B. Tax Foundation State Business Tax Climate Index

The stated purpose of the Tax Foundation’s State Business Tax Climate Index (Robyn, 2012, p. 1) is to, “enable business leaders, government policymakers, and taxpayers to gauge how their states’ tax systems compare.” The index is constructed as a composite score based on corporate tax rate, individual tax rate, sales tax rank, unemployment insurance tax rank, and property tax rank. Weights for these components of the index are determined by a process in which “…each component is weighted based on the variability of the 50 states’ scores from the mean (Robyn 2012, p. 9).” The resulting weights are greater for those index components with greater variation among the states. If we denote the standard deviation among all states having tax $T_i$ as $\sigma_i$ and the corresponding weights as $w_i(\sigma_i)$, we can write the sum of the weights as:

$$\sum_{i=1}^{5} w_i(\sigma_i) = 1.$$  

3 The Tax Foundation (2012) has also recently published a comparative analysis of state tax costs for seven prototype firms across the 50 states. That study takes into consideration corporate income taxes, property taxes, sales taxes, unemployment insurance taxes, capital stock taxes, inventory taxes, and gross receipts taxes. The firms’ tax costs were modeled both as if the firm were an existing mature firm in the state and as a new firm eligible for state tax incentives. This approach comes closer to the Ernst and Young/COST methodology for estimating METRs, although significant differences in approach remain. One significant difference is the treatment of tax incentives, which the Ernst and Young/COST methodology ignores, but the new Tax Foundation methodology incorporates.
While Robyn (2012) does not specify the precise functional form for the weights, he does indicate that they are increasing in $\sigma$. In the 2012 Index, the computed weights on the five major components are as follows:

- Individual income tax: 33.1 percent
- Sales tax: 21.4 percent
- Corporate tax: 20.3 percent
- Property tax: 14.1 percent
- Unemployment insurance tax: 11.1 percent.

Each state is given an index score on a scale of zero to 10, with 10 being most favorable to business. Then, the states are ranked on the basis of their index scores, with a rank of one being the best and 50 the worst state business tax climate.

1. Corporate tax

For states having a corporate income tax, the corporate tax component of the Tax Foundation (TF) index is calculated using three factors: (1) the top statutory tax rate, (2) the level of income at which the top rate applies, and (3) the number of tax brackets. As a result of relying on these factors, states with a low tax rate have high scores. On the other hand, states with a high tax rate or a multiple tax rate system earn low TF scores.4

A sub-index takes into account a number of features of the corporate income tax base, including net operating losses (NOLs), the number of years allowed for carry-back and carry-forward, limitations that may exist on carry-backs and carry-forwards, whether the federal definition of corporate income is used as the state tax base, allowance of federal Accelerated Cost Recovery System (ACRS) and Modified Accelerated Cost Recovery System (MACRS) depreciation, deductibility of depletion, whether the federal alternative minimum tax (AMT) applies at the state level, deductibility of foreign taxes paid, indexation of the tax code, and the presence of a throwback rule.

State tax credits also have an impact on a component of the corporate income tax ranking. Under the TF approach, states that offer specific incentives in the form of tax credits that apply to selected firms are likely to have a bad business climate in general. Hence, states that provide investment tax credits, job tax credits, or research and development tax credits score poorly. Other features of the state tax system are also taken into account, such as the use of a throwback rule and foreign tax deductibility.

4 For states with a gross receipts tax, two factors are considered: (1) the gross receipts tax rate, and (2) whether the gross receipts tax rate is an alternative tax or the generally applicable tax on corporations. The three states that do not levy either a corporate income tax or a gross receipts tax, Nevada, South Dakota, and Wyoming, receive perfect scores of 10. As a result, the TF corporate tax ranking actually ranks the remaining 47 states relative to one another.
One complicating factor is that not all states have each of the forms of taxation. For example, the states of Alaska, Delaware, Montana, New Hampshire, and Oregon do not have general state sales taxes. The TF Index measures the combined state and local sales tax rate in each state by adding the state’s general sales tax rate to the weighted average of the county and municipal sales tax rates. The states at the top of the TF sales tax component of the State Business Tax Climate Index are New Hampshire, Delaware, Montana, Oregon, and Alaska. Clearly, the lack of a statewide general sales tax puts these states at the top of the TF ranking. Alaska is fifth in part because it permits local sales taxes. In fact, commenting on the top 10 states in the 2012 Business Tax Climate Index, Robyn (2012, p. 1) states explicitly, “It is obvious that the absence of a major tax is a dominant factor in vaulting many of these 10 states to the top of the rankings.” One must question why the absence of one form of taxation makes such a difference in a state’s business climate when the absence of that tax may be accompanied by the presence of other revenue sources.

TF rankings are relative rankings, not absolute rankings, as indicated by Robyn (2012). Each variable used in the computations is ranked relative to that variable’s range among other states with that tax feature. The relative score is measured on a scale of zero to 10, with zero meaning the lowest score observed among the 50 states. These relative scores are then normalized so that they are comparable and can be summed. The problem is that the average scores differ substantially across the state taxes. Robyn (2012) reports that the unadjusted average corporate income tax score is 7.0, whereas the average sales tax score is 5.32. The scores on the five major components of the TF index are normalized, bringing the average to 5.0 for all five components. For this normalization, Robyn (2012) indicates that states without a particular tax are omitted from the computation and then each of the remaining states’ scores are normalized by multiplying every state’s score by a constant value. No mention is made of precisely how the constant value is selected. While the TF attempt to normalize is good, a more orthodox statistical normalization procedure would be better. Each state’s score could be adjusted as a z-score, subtracting the mean and dividing by the standard deviation. With this transformation there would be a true normalization and a more meaningful set of comparisons could be made.

2. Individual Income Tax

A sub-index compares states having an individual income tax. The seven states with no individual income tax receive perfect scores of 10 (Alaska, Florida, Nevada, South Dakota, Texas, Washington, and Wyoming). The remaining 43 states receive scores based on their top marginal tax rate, top bracket threshold, number of tax brackets, and average width of tax brackets. There is also a sub-index that scores states on their tax bases, taking into account various aspects of the tax base definition. Issues affecting states’ scores include: marriage penalties, double taxation of capital income, conformity to the federal income definition, and state mimicking of the federal AMT.
C. Ernst and Young/COST Business Tax Competitiveness Index

Ernst and Young (EY), in cooperation with the Council on State Taxation (COST), produces an annual report on total state and local business taxes as well as an index of business tax competitiveness. Phillips, et al. (2011) provides the latest estimates of state and local taxes as a percent of gross state product (GSP), which they term the total effective business tax rate (TEBTR). They found that the average TEBTR among the 50 states in 2010 was 5.0 percent, while the rates ranged from a low of 3.3 percent in Connecticut to a high of 13.3 percent in Alaska. It should be noted that the states with the highest TEBTRs have substantial severance taxes on natural resources. Consequently, the effective burdens on state residents are unclear due to the fact that the attempt to shift the tax burden to out-of-state purchasers interacts with international pricing of those resources. In addition, this report also provides useful data on the distribution of state and local business taxes by type and state. The property tax share of total state and local business taxes ranges from a low of 15.4 percent in Alaska to a high of 57.9 percent in both Maine and Vermont. The average for the 50 states is 40.3 percent. The second largest category of state and local business tax is the sales tax. The sales tax share ranges from a low of zero percent in the five states without a state sales tax to a high of 44.4 percent in Washington. Corporate income taxes average 7.1 percent of total state and local business taxes, ranging from a low of zero percent in Nevada, Texas, Washington, and Wyoming, to a high of 21.2 percent in New Hampshire.

The TEBTR data provide evidence of the differences in average business tax rates across the states — which is useful in describing the nominal business tax burden, but it gives no indication of the true economic incidence of these business taxes. Just as the note above regarding severance taxes warned that those taxes are likely shifted forward to consumers of the natural resources extracted, the economic incidence of all business taxes involves shifting of the tax burden according to the forces of the marketplace. Ultimately, some combination of final product consumers, business employees, and capital providers will bear the burden of business taxes. TEBTR estimates make no attempt to determine that ultimate incidence.

In their study of competitiveness, the EY-COST approach is to estimate the state and local taxes that would apply to a company making an investment in the form of a new facility or the expansion of an existing facility. In particular, they attempt to measure the marginal taxes on additional investment, rather than an overall measure of the average tax rate on all investment or business activity. To do this they combine estimates for specific types of facilities to obtain an overall estimate for each state. The facility types include: headquarters facility, research and development facility, office and call center facility, durable manufacturing facility, and non-durable manufacturing facility.

To construct the aggregate measure for each state, the tax burden on each type of facility is weighted by the importance of that type of facility among all business facility investments over the period 2007–2009. Weights are computed using data from an EY study of announced capital investments over that same period. EY also has data on the announced number of new jobs as well. Hence, an alternate way of computing
the aggregate measure is to weight by the distribution of new jobs that correspond to the investments. The EYETR1 and EYETR2 indices reported in this paper reflect the weighting by capital investment and jobs, respectively.

Using Internal Revenue Service Statistics of Income and other data on assets, liabilities, receipts, deductions, and net income, 30-year financial profiles are constructed for each of the facility types. Estimates of all of the major state and local taxes (corporate income taxes, alternative business income taxes, sales taxes, property taxes, and net worth taxes) that will be owed on the facility are estimated. Then estimates of the ETR on new investment in each state are computed from the reduction in the rate of return over the 30-year profile of the financial analysis. For example, if taxes reduce the pre-tax rate of return from 11 percent down to an after-tax rate of return of 10 percent, then the ETR is 9.1 percent.

D. Small Business Survival Index

The Small Business Survival Index (SBSI) is published by the Small Business and Entrepreneurship Council with the express purpose of ranking the 50 states and the District of Columbia, “… according to some of the major government-imposed or government-related costs affecting investment, entrepreneurship, and business” (Keating, 2011, p. 5). This index is based on 44 measures of government-related costs that affect small businesses and entrepreneurs. The tax components included in the computation of the index are generally measured as the top rates applied for each type of tax. Tax rates included are the personal income tax, individual capital gains tax, corporate income tax, corporate capital gains tax, additional income tax on S-corporations, individual AMT, and the corporate AMT. Other features of state tax systems that are considered include: indexing of personal income tax brackets, income tax progressivity, property taxes, sales/gross receipts and excise taxes, estate and inheritance taxes, unemployment tax rates, tax limitations, internet taxes, Amazon taxes, gasoline and diesel fuel taxes, wireless tax, and health savings accounts.

The 2011 SBSI ranked South Dakota, Nevada, and Texas as the most business friendly states, while it ranked New Jersey, New York, and the District of Columbia as the least friendly.

E. Cost of Doing Business Index

This index is designed to indicate “… each state’s comparative advantages or disadvantages in attracting and retaining businesses” Milken Institute (2007, p.1). The index is based on a weighted average of five components: wages cost index, tax burden index, electricity cost index, industrial rent index, and an office rent cost index. The tax burden component is measured as annual state tax revenue as a share of state personal income (from U.S. Census of State Governments Tax Collections) and receives a 20 percent weight in the overall Cost of Doing Business Index. Other components of the
index and their weights include: wage cost (50 percent weight), cost of commercial
and industrial electricity (15 percent weight), cost of renting industrial space (10 per-
cent weight), and the cost of renting office space (5 percent weight). The weighting
methodology is not provided.

The states of Hawaii, New York, and Alaska are ranked as having the highest cost of
doing business in the United States in the most recent index (2007). At the bottom of
the index is the state of South Dakota. One of the major factors determining the ranking
of states by this index appears to be the cost of electricity.

**F. U.S. Economic Freedom Index**

This index is designed to “…measure economic freedom across the 50 U.S. states
using the methodology of the 1999 and 2004 editions,” (McQuillan et al., 2008, p. 7).
The overall index is based on a weighted average of five components encompassing a
total of 209 variables. One of the five components measures the fiscal sector. Indicators
used in the fiscal sector ranking include multiple characteristics of the individual income
tax, sales tax, corporate income tax, property tax, and other tax systems. Characteristics
measured include top tax rates, taxes as a percent of personal income, taxes per capita,
specific excise tax rates, and other features, which are indicated using dummy variables.
Sector scores are computed using an average of the indicator ranks of 1–50 for each
state. Five data sets are constructed using various subsets of the data. Scores for each
sector are computed using each of the five data sets and several sets of both objective
and subjective weights. A total of 35 unique indices are thus created. In the final step,
the best index is determined by the ability of each index to explain net population
migration rates for the states over the period 2003–2007. In the final overall index, the
fiscal sector ranking receives a weight of 0.2313. Sector score weights are determined
using principle components analysis.

**G. Economic Freedom Index of North America**

This index is based on 10 equally-weighted components across three major areas:
size of government, takings and discriminatory taxation, and labor market freedom.
The index is computed both at the all-government level (including federal, state/pro-
vincial, and municipal/local governments) and at the subnational level (including state/
provincial and municipal/local governments). The takings and discriminatory taxation
sub-component includes total tax revenue as a percent of GDP, the top marginal income
tax rate and the threshold at which it applies, and both indirect tax revenue as a percent
of GDP and sales taxes collected as a percent of GDP. In each of these cases, except
the top marginal income tax rate and the income threshold at which it applies, a higher
ratio reduces the government’s economic freedom score. In the case of the top marginal
income tax rate, the takings and discriminatory taxation score is greater the higher
the income threshold at which the top rate applies. The maximum score attainable for
the economic freedom index is ten, indicating the highest relative level of economic freedom among the governments evaluated. A score of ten does not indicate perfect economic freedom, however.

Ashby, Bueno, and McMahon (2011, p. 6) indicate that the overall economic freedom index is constructed “… without imposing subjective judgments about the relative importance of the components.” To do so, the authors state that “… each area was equally weighted and each component within each area was equally weighted (Ashby, Bueno, and McMahon, 2011, p. 6).” Of course, equal weighting is itself a subjective judgment and it should be recognized that it is impossible to avoid such judgments in constructing any index.

This index has been used in a variety of research contexts. For example, Garrett and Rhine (2011) use it in their analysis of employment growth in U.S. states, finding that greater economic freedom is associated with higher rates of state employment growth.

III. EMPIRICAL EVIDENCE

In this section, we consider both the basic descriptive natures of selected indices and the explanatory power of the most popular state business tax climate index in explaining state GDP growth rates.

A. Descriptive Statistics

Table 4 reports summary statistics for seven indices. The indices are scaled differently so their means are not directly comparable. The coefficients of variation (CV) give insight on the variability of each index, measured by the standard deviation, relative to its mean. By this measure, the EY-ETR1 index is the most highly variable across the 50 states, with a CV of 0.3038, followed closely by the EY-ETR2 measure with a CV of 0.2804. The Tax Foundation State Business Tax Climate Index corporate component is also relatively variable in comparison with other indices, with a CV of 0.2587. Least variable among the indices is the Economic Freedom Index subnational component, with a CV of just 0.855. Indices with little variation across the states are less likely to be able to distinguish differences in the tax systems they are attempting to describe.

It is also useful to observe the skewness coefficients for the indices in Table 4, as they indicate whether the shape of the index’s distribution across the states is symmetric or skewed. The negative skewness measures for the subnational Economic Freedom Index and the SBSI indicate that those indices are skewed leftward, with some small index measures in the left-hand tail of the distribution. All of the other indices have positive skewness measures indicating that their distributions have right-hand tail observations (also pulling the mean above the median). The most right-skewed index in the table is the Tax Foundation’s State Business Tax Climate Index corporate component.

In order to consider whether an index merely reflects values drawn randomly from a normal probability distribution, we can consider the Jarque-Bera (JB) test statistic
Table 4
Summary Statistics for Selected Indices

<table>
<thead>
<tr>
<th></th>
<th>EFI-SUBNATL</th>
<th>EYETR1</th>
<th>EYETR2</th>
<th>SBSI</th>
<th>TFSBTCI</th>
<th>TFSBTCI-CORP</th>
<th>USEFI-FISCAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>7.0100</td>
<td>7.6980</td>
<td>8.8820</td>
<td>60.724</td>
<td>5.2598</td>
<td>5.3004</td>
<td>23.920</td>
</tr>
<tr>
<td>Median</td>
<td>7.1000</td>
<td>7.2500</td>
<td>8.7000</td>
<td>60.048</td>
<td>5.1200</td>
<td>5.1100</td>
<td>23.715</td>
</tr>
<tr>
<td>Maximum</td>
<td>8.1000</td>
<td>16.600</td>
<td>17.900</td>
<td>82.787</td>
<td>7.6700</td>
<td>10.000</td>
<td>31.460</td>
</tr>
<tr>
<td>Minimum</td>
<td>5.5000</td>
<td>3.0000</td>
<td>4.3000</td>
<td>32.292</td>
<td>3.3290</td>
<td>3.1500</td>
<td>16.570</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.5991</td>
<td>2.3390</td>
<td>2.4904</td>
<td>11.351</td>
<td>0.9797</td>
<td>1.3711</td>
<td>3.6856</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>0.0855</td>
<td>0.3038</td>
<td>0.2804</td>
<td>0.1869</td>
<td>0.1863</td>
<td>0.2587</td>
<td>0.1541</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.2526</td>
<td>0.9989</td>
<td>0.8309</td>
<td>-0.0876</td>
<td>0.6990</td>
<td>2.2520</td>
<td>0.2071</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.5130</td>
<td>5.6801</td>
<td>4.9296</td>
<td>2.7685</td>
<td>3.4044</td>
<td>8.9442</td>
<td>2.3090</td>
</tr>
<tr>
<td>Jarque-Bera (JB) statistic</td>
<td>1.0260</td>
<td>23.280</td>
<td>13.510</td>
<td>0.1754</td>
<td>4.4121</td>
<td>115.87</td>
<td>1.3519</td>
</tr>
<tr>
<td>Jarque-Bera probability</td>
<td>0.5987</td>
<td>0.0000</td>
<td>0.0012</td>
<td>0.9160</td>
<td>0.1101</td>
<td>0.0000</td>
<td>0.5087</td>
</tr>
<tr>
<td>Observations</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>
listed in Table 4 along with its probability value. If the data from which a JB statistic is computed deviate from the shape of a normal distribution, the JB statistic is large. Using the associated probability value, a test of the null hypothesis of normality can be rejected for three of the indices: Ernst and Young ETR1 and ETR2, and the Tax Foundation’s State Business Tax Climate Index Corporate. The other indices have distributions that are not discernibly different from a normal distribution.

Table 5 reports partial correlation coefficients among the indices. In general, many of the indices are virtually uncorrelated with one another. For example, the EY ETR measures (EYETR1 and EYETR2) are highly correlated with one another, but are virtually uncorrelated with any of the other indices. That is because the unique methodology used in computing the EY ETR measures is unlike that of the other indices. The other feature to notice in Table 5 is that the signs of the partial correlation coefficients vary among the indices. One reason is that the indices vary in their measurement scales. The EY ETR measures reflect effective tax rates so the larger the value of the EY measure the higher the tax rate. In contrast, the EFI-SUBNATL and USEFI-FISCAL indices measure economic freedom so that higher tax rates will generally reduce these measures. Similarly, the SBSI and TFSBTCI indices are larger for lower tax rates, other things being equal. So, it is not surprising that the EY ETR measures are negatively correlated with most of the other indices. Interestingly, however, the EY ETR measures are uncorrelated with the TFSBTCI–CORP index. It is also curious that the SBSI index is negatively correlated with both of the TFSBTC indices at moderate rates of correlation (approximately −0.6 to −0.7). The relatively low partial correlations among many of these indices indicate that they are measuring different things, as indicated in Table 2.

B. Explanatory Ability

We also seek to know whether these indices have explanatory power in terms of explaining state economic performance. In order to test this, the Tax Foundation’s State Business Tax Climate Index was used as an explanatory variable in a simple state growth model. Table 6 reports the results of regressing the change in state GDP on the level of state GDP, year dummy variables (where 2007 is the omitted year), and two alternative TF-SBTC indices — personal and corporate. Model 1 includes the TF-SBTCI-Personal measure, which has an estimated coefficient that is positive although we cannot reject the null hypothesis that this variable has no significant impact on state GDP growth. Model 2 includes the TFSBTCI-Corporate measure, which is positive and significantly different from zero. This results indicates that the better the state corporate business tax climate, as measured by the TF-SBTCI-Corporate, the stronger the state’s rate of GDP growth over the period 2007–2010. Model 3 includes both TF-SBTCI measures, in which case the corporate measure is positive and significant while the personal measure is not significantly different from zero. Models 4 and 5 replicate Models 1 and 2, this time including state fixed effects (with all 50 states included, hence there is no constant term in these models). When fixed effects are included in the models, the TF-SBTCI
### Table 5
Partial Correlations among Selected Indices

<table>
<thead>
<tr>
<th></th>
<th>EFI-SUBNATL</th>
<th>EY-ETR1</th>
<th>EY-ETR2</th>
<th>SBSI</th>
<th>TF-SBTCI</th>
<th>TF-SBTCI-CORP</th>
<th>USEFI-FISCAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFI-SUBNATL</td>
<td>1.0000</td>
<td>-0.0989</td>
<td>-0.0917</td>
<td>-0.5176</td>
<td>0.3614</td>
<td>0.3176</td>
<td>-0.3132</td>
</tr>
<tr>
<td>EY-ETR1</td>
<td>-0.0989</td>
<td>1.0000</td>
<td>0.9695</td>
<td>-0.0008</td>
<td>-0.1364</td>
<td>-0.0046</td>
<td>-0.2100</td>
</tr>
<tr>
<td>EY-ETR2</td>
<td>-0.0917</td>
<td>0.9695</td>
<td>1.0000</td>
<td>0.0293</td>
<td>-0.1989</td>
<td>-0.0063</td>
<td>-0.1896</td>
</tr>
<tr>
<td>SBSI</td>
<td>-0.5176</td>
<td>-0.0008</td>
<td>0.0293</td>
<td>1.0000</td>
<td>-0.6993</td>
<td>-0.6034</td>
<td>0.5056</td>
</tr>
<tr>
<td>TF-SBTCI</td>
<td>0.3614</td>
<td>-0.1364</td>
<td>-0.1989</td>
<td>-0.6993</td>
<td>1.0000</td>
<td>0.5707</td>
<td>-0.3967</td>
</tr>
<tr>
<td>TF-SBTCI-CORP</td>
<td>0.3176</td>
<td>0.0046</td>
<td>-0.0063</td>
<td>-0.6034</td>
<td>0.5707</td>
<td>1.0000</td>
<td>-0.3481</td>
</tr>
<tr>
<td>USEFI-FISCAL</td>
<td>-0.3132</td>
<td>-0.2100</td>
<td>-0.1896</td>
<td>0.5056</td>
<td>-0.3967</td>
<td>-0.3481</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
Table 6
Models of TF Tax Index Measures on Changes in State GDP, 2007–2010

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient Estimate (Standard Error)</td>
<td>Coefficient Estimate (Standard Error)</td>
<td>Coefficient Estimate (Standard Error)</td>
<td>Coefficient Estimate (Standard Error)</td>
<td>Coefficient Estimate (Standard Error)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.6508**</td>
<td>0.8792</td>
<td>0.5954</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0889)</td>
<td>(0.7507)</td>
<td>(1.0284)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TF-State business tax-personal</td>
<td>0.1214</td>
<td>0.0642</td>
<td>0.1009</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.1572)</td>
<td>(0.1586)</td>
<td>(0.1871)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TF-State business tax-corporate</td>
<td>0.2550**</td>
<td>0.2460**</td>
<td></td>
<td>0.2968</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.1208)</td>
<td>(0.1231)</td>
<td>(0.2552)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>-7.92E-07</td>
<td>-6.70E-07</td>
<td>-6.39E-07</td>
<td>8.44E-06**</td>
<td>5.15E-06</td>
</tr>
<tr>
<td></td>
<td>(5.33E-07)</td>
<td>(5.28E-07)</td>
<td>(5.34E-07)</td>
<td>(4.31E-06)</td>
<td>(5.19E-06)</td>
</tr>
<tr>
<td>Year 2008</td>
<td>-1.9060***</td>
<td>-1.9105***</td>
<td>-1.9079***</td>
<td>-1.8805***</td>
<td>-1.9298***</td>
</tr>
<tr>
<td></td>
<td>(0.4601)</td>
<td>(0.4552)</td>
<td>(0.4566)</td>
<td>(0.4280)</td>
<td>(0.4280)</td>
</tr>
<tr>
<td></td>
<td>(0.4601)</td>
<td>(0.4555)</td>
<td>(0.4566)</td>
<td>(0.4265)</td>
<td>(0.4288)</td>
</tr>
<tr>
<td>Year 2010</td>
<td>0.3097</td>
<td>0.3147</td>
<td>0.3138</td>
<td>0.3372</td>
<td>0.2965</td>
</tr>
<tr>
<td></td>
<td>(0.4600)</td>
<td>(0.4555)</td>
<td>(0.4565)</td>
<td>(0.4294)</td>
<td>(0.4275)</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.3206</td>
<td>0.3338</td>
<td>0.3310</td>
<td>0.4064</td>
<td>0.4060</td>
</tr>
<tr>
<td>$F$</td>
<td>19.7844</td>
<td>20.9457</td>
<td>17.4068</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$N$</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Notes: Asterisks indicate statistical significance at the 1% (***) , 5% (**), and 10% (*) levels. Year 2007 is the omitted year in this analysis, so coefficient estimates for the Year 2008, 2009, and 2010 variables should be interpreted relative to Year 2007.
personal and corporate tax measures are not significant. The inclusion of state fixed effects increases the explanatory power of the models, as indicated by the adjusted R², but once these effects are included the tax index variables have no discernible effect on state GDP growth.

The Kolko, Neumark, and Mejia (2011) models for state economic growth rates split the difference between the two extreme approaches reported in Table 6 (either no state-specific control variables other than the level of GDP, or a full set of state fixed effects). In their base regression model of one-year state economic growth rates, Kolko, Neumark, and Mejia (2011) include only alternative business climate indices as explanatory variables and find consistent positive and significant results. When various state explanatory variables are also included nearly all of the significance of the business climate indices disappears. They find that industry composition, population density, and mild climate explanatory variables are significant and largely eliminate the explanatory power of the tax and cost related indices. Hence, the Model 1 and Model 2 results in Table 6 of this paper are consistent with the base regression results of Kolko, Neumark, and Mejia (2011) — with no other state-specific controls in the models, the state business climate variable may have explanatory power. Once additional controls are added, as in the Kolko, Neumark, and Mejia models, or state fixed effects are included, as in Models 4 and 5 of Table 6, the explanatory power of the state business climate measures disappears. These results are not unexpected. Changes in state GDP from year to year are driven by a host of unobserved factors, many of which are unrelated to a state’s tax climate.

Researchers wishing to use state tax indices or rankings would do well to heed the lessons of the international growth literature. Levine and Zervos (1993) evaluate the lessons learned from cross-country regressions explaining how various policy factors affect national growth. They find that many of the reported empirical results are highly sensitive to small changes in the conditioning information set. That is, small changes in the set of explanatory variables on the right hand side of the regression equation result in starkly different conclusions regarding the impact of policy variables. Consequently, the cross-country regressions are not very accurate policy menus for a particular country to follow as it considers a policy change. They suggest that cross-country regressions should be considered as reflecting the strength of partial correlations, but not considered as reflecting behavioral relationships that indicate the likely outcome of a policy change in a given country.

Levine and Zervos suggest the use of Leamer’s (1985) extreme bounds analysis (EBA) in cross-country regressions where \( GYP \) is the rate of growth of GDP per capita over a period of time for a cross section of countries, \( I \) is a vector of base variables included in all variants of the model estimated, \( M \) is the policy variable indicator of interest, and \( Z \) is a vector of up to three explanatory variables chosen from a set of up to seven policy indicators. The basic estimating equation can be written (suppressing the cross-section subscripts) as:

\[
GYP = \beta_i I + \beta_m M + \beta_z Z + \mu.
\]
The EBA method involves varying the $Z$ variables to find whether the estimated coefficient $\beta_m$ is consistently statistically discernible (significant) and of the same sign. That determines whether the policy result is robust or fragile.

This method can be easily adapted to cross-section state growth rates in order to test whether various state policies are robust explanatory variables. While there is a large literature on empirical models of state growth rates, to date the only application of the EBA method in subnational public finance is the work of Reed (2009). He investigated the policy factors affecting U.S. state economic growth rates over the time period 1970–1999. His results indicate that both productivity characteristics of the labor force and state industry composition are significant determinants of state growth rates. Among the public policy variables he found to be significant are measures of the size and structure of governments and the overall level and composition of public revenues. Reed (2009) finds that a measure of tax burden — total state revenues as a share of state personal income (which is an average tax rate) — is a robust growth explanatory factor. His estimates indicate that a one percent increase in tax burden over a five-year period is associated with a contemporaneous reduction in state economic growth of 0.63 percent and a reduction of 0.73 percent over the subsequent five-year period. Unlike Helms (1985) and much of the subsequent literature, which estimates a model with a government budget constraint specification, the Reed estimation method does not hold state expenditures constant as it estimates the impact of taxes on growth. Hence, the Reed estimates implicitly combine the impact of state taxes and corresponding spending on growth. This approach deserves further investigation to assess the role of the budget constraint, or lack thereof, and its implications for the estimation results.

### IV. SUMMARY AND CONCLUSIONS

State tax rankings have proliferated in recent years, with a wide variety of rankings produced using a multiplicity of methodologies. The result is that states at the top of some rankings may be near the bottom of others, leading to inconsistent results and unclear policy implications. This paper tries to make some sense of the current rankings confusion by examining several of the leading rankings that focus on state tax climate. For each of the rankings indices, the paper examines the features of state tax systems taken into account and the measurements of those features incorporated into the indices.

State tax rankings based on Census Bureau data on total state taxes tell us about the relative sizes of state governments, which largely reflect the relative sizes of state economies. Rankings based on Census data on total state taxes per capita take into account population size differences across states and reflect the relative size of state government on a per person basis. These measures are useful for gaining some insight on the fiscal burden of state governments. Neither of these measures provides any insight, however, regarding business taxes in particular or marginal effective tax rates. Rankings that are primarily based on productivity measures tell us about factor markets, human capital, entrepreneurship characteristics, and other features of state economies.
Indices of this type include the State New Economy Index, the Development Report Card for the States, and the State Competitiveness Index. These indices do not tell us anything directly about state tax systems, however. Indices that focus more specifically on taxes and costs include the State Business Climate Index, the Small Business Survival Index, the Cost of Doing Business Index, the U.S. Economic Freedom Index, and the Economic Freedom Index of North America. Among these tax-related indices, however, there is a wide range of tax measures used in the construction of the indices. Some indices are based on top marginal tax rates for various taxes, while others use tax revenues collected relative to state personal income. Several of the indices combine multiple features of state tax systems with weighting schemes based on more or less arbitrary rationales. What these indices tell us about state tax systems is not transparent. In order to use these indices with discretion, analysts must know what they contain and how they are constructed.

A basic cost of capital model indicates that both taxes on personal income and net corporate income have an impact on investment, as do depreciation schedules and state investment incentives. So, to the extent that an index is aimed at revealing states with a favorable investment climate, we would hope to find these elements in the index. Ideally, the index should measure the METR on investment. Only one index explicitly measures the METR: the Ernst and Young/COST index. That index explicitly ignores investment incentives, however. The other indices reviewed incorporate one or more tax rates or other measures of tax burden, and many of them construct weighted average measures of various tax system features. A review of their components and weights indicates that it is important to know what is being measured and how in order to gain an understanding of the resultant state ranks. Policy makers must know what is being measured by an index they are considering in order to intelligently derive policy implications from that index’s state ranking.

Simple partial correlation analysis of the indices considered indicates that in general they measure different things. The Ernst and Young/COST effective tax rate measures are not highly correlated with any of the other indices. That is due to the fact that the other indices do not attempt to measure METRs. Partial correlations among the remaining indices range from approximately 0.3–0.7, indicating a modest degree of similarity in their measurements across states.

In order to test the ability of indices such as these to explain economic conditions, simple state growth models are estimated. The most popular index, the Tax Foundation’s State Business Tax Climate Index, is found to have limited ability to explain changes in state GDP. In a simple panel data set of 50 states over 2007–2010, the index sub-component measuring state corporate tax is positive and significant, indicating that a better corporate tax climate contributes to faster state GDP growth. The TF personal tax sub-component is not significant. When state fixed effects are included in the model the explanatory power of the corporate tax variable is lost, however. So, from the point of view of explaining state economic growth, simple state fixed effects are better than the complex TF index. Researchers wishing to investigate whether this
or any such indices are able to help explain state GDP growth should consider using extreme bounds analysis. Using that method, they can determine whether such indices are robust in their explanatory power.

In the final analysis, state tax rankings are based on often complex measures of state tax system features, typically combined with other measures of state regulations, the cost of doing business, or other features. Most of the popular indices do not attempt to measure METRs. Rather, they typically use top marginal tax rates or taxes as a share of state income/GDP combined with other measures to produce their rankings. Policy makers should be careful to understand the measures included in any index, the weights placed on those measures, and the subjective judgments incorporated into the computation of the index. Every index has an implicit policy agenda and the wise policy maker will understand that agenda when attempting to rely on the state ranking generated by that index.

REFERENCES


