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TEXAS TAX OPTIONS

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Abstract

The State of Texas is contemplating sweeping changes in its revenue structure as part of a reform of the system of K-12 school finance in the state, with the main goal being a reduction in local school property taxes coupled with increased state level funding for education. This paper, which is an updated and abbreviated version of a report prepared for the Texas Joint Select Committee on Public School Finance, evaluates the relative advantages and disadvantages of the main potential approaches currently under active consideration in Texas. It considers three types of options — incremental reforms of the existing system, more fundamental reforms of the existing tax system, and the introduction of new taxes. The full report, titled “An Economic Evaluation of Alternative Sources of Tax Revenue for the State of Texas,” is available at the Texas School Finance Project website, <http://capitol2.tlc.state.tx.us/psf/reports.htm>. I would like to thank Timothy Bartik, John Diamond, Randall Eberts, Margaret Goertz, Harrison Keller, Charles McLure, David Monk, Lori Taylor, and Arnold Vedlitz for helpful comments and Joyce Tung for excellent research assistance.

I. Introduction

Overview

The State of Texas is contemplating sweeping changes in its revenue structure, as the Texas Legislature is considering a variety of plans that would reform the system of K-12 school finance in the state. As discussed in Zodrow (2004), the main goal of this effort is a reduction in local school property taxes coupled with increased state level funding for education.

A general idea of the magnitude of the revenue involved, based on figures provided by the State Comptroller of Public Accounts, is as follows. In the state's 2002 tax year, with a statewide average effective school "Maintenance and Operations" (M&O) property tax rate of 1.46 percent (this rate is capped at 1.50 percent under current law), local governments raised \$14.6 billion. Under some of the more dramatic reforms being discussed, this rate would be cut approximately in half, to 0.75 percent. The State Comptroller's office estimates indicate that in this case local property tax revenue would fall to \$7.5 billion; that is, the state would have to replace \$7.1 billion in revenues on an annual basis. In addition, school finance reform may involve an increase in the overall level of school funding, financed at the state level, which might be on the order of \$1.0 billion per year. Thus, under this particular (admittedly somewhat arbitrary) scenario, state revenues would have to increase by \$8.1 billion, which would represent a 31 percent increase in annual state tax revenues, which were \$26.3 billion in 2002.

There are, of course, many options for obtaining such extra revenue. They range from moderate adjustments of the existing state tax system focused on rate increases or modest base increases, to sweeping overhauls of the existing system, to the introduction of new forms of taxation. History suggests that moderate structural changes and rate increases are the most likely outcome. However, the magnitudes of the revenues involved are huge, and the likelihood of sweeping changes of the state tax structure may be greater in the face of widespread and intense opposition to the current system of school finance. Thus, school finance reform may offer a unique opportunity for fundamental reforms of the existing tax structure or even the enactment of new forms of taxation. The goal of this paper is to contribute to the debate not by formulating specific recommendations but to evaluate, from an economic perspective, the relative advantages and

disadvantages of all of the main potential approaches to raising new state tax revenue—including both incremental and fundamental reforms—that are currently under active consideration in Texas.¹

The paper is organized as follows. The following section provides a brief description of the existing Texas state tax system, focusing on aspects critical to the evaluation of reform options. The paper then discusses the criteria used to evaluate alternative revenue options, emphasizing the application of these criteria in a state (rather than a national) context. The next section analyzes a host of revenue options in terms of these criteria. It begins with a general discussion of the constraints facing state tax policymakers and their implications, and then turns to an evaluation of various reform options. The final section offers some conclusions.

II. An Overview of the Texas State Tax System

Although a full description of the Texas tax system is far beyond the scope of this report, this section identifies the current major sources of tax revenue in the state. It also provides an outline of the two state revenue sources that are the most pertinent to the discussion that follows—the general sales tax and the franchise tax.

In 2002 total state tax revenue in Texas was \$26.3 billion. Of this amount, 55.2 percent (\$14.5 billion) was revenue from the general sales tax, 11.2 percent (\$2.9 billion) came from taxes on motor vehicle sales and rentals, 10.8 percent (\$2.8 billion) was from excise taxes on motor fuels, 7.4 percent (\$1.9 billion) from the franchise tax applied to Texas businesses, 4.2 percent (\$1.0 billion) from excise taxes on alcohol and tobacco, 4.0 percent (\$1.0 billion) from taxes on insurance premiums and hotel occupancy taxes, 3.7 percent (\$1.0 billion) from oil and gas severance taxes, and 3.5 percent (\$0.9 billion) from various other taxes. Additional data and a comparison with tax systems in other states are provided in Zodrow (2004).

¹ This paper draws on an earlier analysis of state sales and income taxes in Texas (Zodrow 1999), as well as a more recent analysis of proposals to broaden the sales tax base to include a wide range of services (Hendrix and Zodrow 2003). In addition, see Hamilton (1989) for an analysis of many issues related to Texas taxes.

The Sales Tax

As noted above, the primary source of state tax revenue in Texas is the general sales tax. The state sales tax rate is currently 6.25 percent. Add-on taxes imposed by counties, municipalities and/or metropolitan transit authorities can increase this by a maximum of two percent. Taylor (2003) documents that most of the recent state revenue shortfall in Texas is due to an unexpected decline in sales and excise tax revenues.

Although commonly perceived to be a tax on retail sales to individual consumers, a significant fraction of the sales tax in Texas is instead assessed on sales between businesses; this fraction is currently estimated by the Comptroller's office to be 47 percent.² The sales tax thus imposes a significant burden on Texas businesses, despite numerous provisions explicitly designed to reduce this burden.³ Texas is not at all unusual in this regard, as all state sales taxes include in their bases at least some items sold to businesses; however, the fraction of the total tax base accounted for by business sales in Texas is comparatively large. For example, Ring (1999) estimates that in 1989 the business share of the sales tax in Texas was 47 percent, in comparison to a national average of 41 percent.

The consumer portion of the sales tax base in Texas includes most consumption commodities; the main exemptions are for food for home consumption, prescription and non-prescription medicines, medical equipment, and residential utilities. In addition, many services are not subject to the sales tax, although Texas, like many other states in recent years, has attempted to increase the sales tax base to include some services. Due and Mikesell (1994, 89) describe the taxation of

² The business tax burden under the sales tax arises primarily due to the taxation of office furniture and computers and some office equipment, some services, fuels, various intermediate goods, certain machines and tools, certain raw materials, and certain transportation and delivery charges. In addition, although purchases of nonresidential structures are not taxed explicitly, they are subject to an implicit tax since sales taxes are paid on the purchases of many of the components of business structures and are thus incorporated in their prices.

³ These include the exemption of (1) goods sold for subsequent resale, (2) property that becomes a component of a manufactured product, (3) property (including equipment) that will either be directly used or consumed in manufacturing or processing, is essential for pollution and quality control, improving efficiency of water use, or complying with government regulations, (4) services performed directly on a product prior to final sale, (5) gas and electricity used directly in manufacturing, and (6) wrapping and packing necessary for the sale of products.

consumer services in Texas as “relatively extensive,” although still falling somewhat short of the coverage obtained in several other states. Similarly, Mazerov (2003) reports that Texas taxes 24 consumer services out of a list of 40 potentially taxable services. (The average of the 45 states plus the District of Columbia that utilize the sales tax is 16 consumer services, but four states—South Dakota, Hawaii, New Mexico, and West Virginia—tax 37 or more of these services.)

The Franchise Tax

The general business tax in Texas is the franchise tax. The range of taxable businesses is fairly broad, as it includes not only standard subchapter-C corporations but also subchapter-S corporations and limited liability companies (LLCs); however, sole proprietorships, all partnerships (including limited liability partnerships), and professional associations are not subject to the tax. A generous small business exemption is provided, as businesses are not taxable until their gross receipts exceed \$150,000.

The tax is assessed on all taxable businesses that have a Texas charter, as well as on out-of-state businesses that are determined to have a sufficient connection (nexus) to the state.⁴ Nexus is established if a firm has a physical presence in the state (payroll, property) or meets various other conditions. No attempt is made to consolidate the accounts of related entities; that is, each individual legal entity is taxed separately.

In general, the franchise tax equals the larger of (1) 0.25 percent of taxable equity capital (a deduction for debt is allowed, so the tax base is net assets), or (2) 4.5 percent of net taxable “earned surplus,” which is roughly defined as the corporation's net taxable income reported under the 1996 version of the federal corporate income tax, plus compensation paid to officers and directors of corporations that have more than 35 shareholders, less various tax credits (e.g., credits designed to promote economic development or R&D). Roughly three-quarters of the revenues raised by the franchise tax comes from firms paying tax according to the latter income-

⁴ This discussion draws heavily on Texas Taxpayers and Research Association (2003).

based calculation method rather than the former wealth-based approach. Thus, in a very real sense, Texas has a corporate income tax, as most of the revenues under the current state franchise tax are currently obtained under the income-based or earned surplus component of the tax, with the tax on net assets effectively serving as an alternative minimum tax. However, the 4.5 percent tax rate applied to the income-based component of the tax is among the lowest of rates in the states that have corporate income taxes (Texas Taxpayers and Research Association 2003, 47). Note that the inclusion in the tax base of compensation of officers and directors has an effect similar to that of a state personal income tax at a 4.5 percent rate on such individuals (who may not be residents of the state) with no deductions or exemptions.

For firms operating in Texas and in other states, no attempt is made to use “separate accounting” to calculate directly either the profits or the taxable capital attributable to activities in the state. Instead, part of the analogous total national tax base of a business is “apportioned” to the state using a “single-factor” formula, where that factor is in-state gross receipts, including all sales as well as income attributable to intangible assets. For example, taxable profit under the income-based component of the franchise tax equals a corporation’s total national profits (as calculated under the 1996 federal corporate income tax and then adjusted as described above) times the fraction of the firm's total gross receipts determined to occur in the state.⁵

III. Criteria for Evaluating the Texas State Tax System

Public finance economists typically use three primary criteria in evaluating alternative tax systems: efficiency, equity, and simplicity. The efficiency criterion focuses on the extent to which taxes distort decisions made by businesses, individuals, and governments; an efficient tax system will also be conducive to economic growth in the state. The equity criterion attempts to establish whether a tax system is “fair,” although the definition of a fair tax system is inherently

⁵ The use of a single-factor formula is somewhat unusual, although growing in popularity. Many states instead use a “three-factor” formula, under which a firm’s national tax base is apportioned to a state using a weighted average of the fractions of the firm’s total property, payroll and sales that are located in the state.

subjective. The simplicity criterion focuses on the relative costs of administering, enforcing, and complying with alternative tax systems.

In addition, because Texas, like most states, is subject to a balanced budget constraint, another important criterion is revenue stability, both with respect to economic growth (i.e., does the tax base grow proportionately with the state economy?) and with respect to the business cycle (i.e., is the tax base relatively stable during a business downturn?). Finally, the deductibility of state taxes against an individual's federal income tax liability is also an issue, but one that is difficult to assess in the current environment. Until the passage of the American Jobs Creation Act of 2004, a strong argument against substituting sales tax finance for local property taxes (and also an argument for a state income tax) was that state and local property (and income) taxes were deductible while sales and excise taxes were not. However, under the new law, individuals in a state can deduct either state sales or income taxes but not both; this creates an argument for continued reliance on the sales tax, and an argument against the introduction of an income tax (so that all state taxes in Texas will be deductible). The issue is further complicated by the fact that the new provision is currently in effect for only two years, so that sales taxes could soon again be not deductible. Given the uncertain current situation, it is difficult to predict how the issue of deductibility affects the various reform options, and thus difficult to argue that differences in deductibility clearly favor any of the options; accordingly, the analysis below will largely ignore the deductibility issue. For a full analysis of the importance of deductibility in evaluating the various options under the assumption that sales taxes are not deductible, see Zodrow (2004).

Efficiency

Economists typically focus on efficiency comparisons of alternative tax systems—that is, their relative effects on the efficiency of the allocation of resources (broadly defined) within a state. Potential state taxes can be classified under two general headings, efficiency-enhancing taxes and efficiency-reducing taxes.

Efficiency-Enhancing Taxes

A few types of taxes actually improve the efficiency of resource allocation within an economy, at least if designed appropriately, and are therefore highly desirable sources of tax revenue. The most important of these is a benefit tax, a tax that is explicitly and directly tied to the benefits received by individuals or businesses from state and local public services. Public choice theorists emphasize that benefit taxes are highly desirable on efficiency grounds because they require that the beneficiaries of public services pay for such services. As a result, benefit taxes play an efficiency-enhancing role in the public sector analogous to the role of prices in the private sector, ensuring that voters are aware of the true costs of providing public services and do not support expansion of public services simply because they receive the benefits while the costs are financed by others. In addition, benefit taxes on businesses ensure that businesses pay the costs of the inputs they use, both public and private, in the production process—an essential condition for efficiency in resource allocation.

The primary example of a benefit tax is a direct user charge such as a toll charge, a fee for government services rendered, or an admission charge to a government-run facility. Indirect user charges, such as the gasoline tax as a proxy for the use of state-provided and maintained roads, are an approximation to a benefit tax. Other taxes may be loosely related to benefits received; in particular, the local property tax can under certain circumstances be viewed as a benefit tax or an approximation to a benefit tax (Fischel 2001; Zodrow 2001).

In practice, however, the use of direct benefit taxes is fairly limited despite their considerable appeal. In some cases, benefit taxes are not feasible because the beneficiaries of public services cannot be identified or precluded from enjoying the public service if they do not pay the tax, or because the costs of administering benefit taxes is unreasonably high. Moreover, benefit taxes may be viewed as inequitable, and clearly cannot be used to finance state and local expenditures that are explicitly intended to be redistributive.

Another important example of an efficiency-enhancing tax is a tax on activities that generate external social costs or “externalities.” Externalities arise when the actions of a business affect others but the business does not take these effects into account, either directly or indirectly

through the price system, in making its production decisions. The most prominent example of an externality is the negative externality that arises when a business generates harmful pollution as a byproduct of its production processes. In this case, appropriately structured taxes on emissions of environmentally harmful pollutants—which would consider the social costs imposed by pollution as well as the interactions between the emission tax and other existing taxes—can improve economic efficiency by reducing production of pollution-intensive products or spurring firms to adopt less pollution-intensive production techniques.

Such external social cost arguments are also sometimes used to justify special excise taxes on alcohol and tobacco products. The rationale is that consumption—or at least excessive consumption, especially in the case of alcohol—of these products leads to external social costs (for example, health care costs or personal and property damage costs that are not covered under insurance policies purchased by the consumers). However, empirical evidence suggests that it is difficult to justify current levels of alcohol and tobacco taxes in Texas (and other states) on these grounds (Smith, forthcoming; Cnossen and Smart, forthcoming). Thus, external effects provide a rationale for some use of these taxes, but it would be difficult to support significant increases in taxes on alcohol and tobacco on these grounds (although such increases may be desirable simply to reduce the consumption of the affected goods, especially among youths).

Finally, the Texas state lottery can arguably be justified as an efficiency-enhancing source of tax revenue. That is, given legal restrictions against private lotteries, the state has a monopoly on sales of lottery games. It can exploit this monopoly position by extracting as tax revenue some of the gains to consumers that arise from the introduction of a legal, state-operated lottery—coupled with continued prohibition of private lotteries—and efficiency will still be enhanced, relative to the situation in which no legal lotteries exist. On the other hand, given the existence of the lottery, state lottery taxes can also be viewed as an excise tax on state provision of lottery “services.” Under this interpretation, lottery taxes inefficiently distort consumer purchases of these services, unless the tax is designed to offset negative externalities associated with the provision of lotteries, such as an increase in compulsive gambling or the offense taken by some Texas citizens at state provision and encouragement of gambling.

Efficiency-Reducing Taxes

Unfortunately, the revenues that could be raised from efficiency-enhancing taxes—even if more of their revenue potential were realized than currently—are not sufficient to meet the revenue needs of the state. Accordingly, Texas, like all other states, must rely on alternative taxes that generate significant amounts of revenue but also distort a wide variety of economic decisions and are thus efficiency-reducing taxes, a classification that includes all of the major current and proposed alternative sources of tax revenue in the state. Efficiency-reducing taxes are problematic because by distorting economic decision-making they distort the allocation of resources in the state, reducing the productivity of the state's scarce factors of production and inducing inefficient consumption choices. The resulting social costs of taxation—which are in addition to the obvious loss of income associated with taxation—are referred to as the “excess burden” or “efficiency cost” of taxation.

From the perspective of a single state—to a much greater extent than from the perspective of the nation—the most important inefficiencies caused by the tax system reflect tax-induced out-migration of mobile factors of production, especially capital and highly skilled labor, and tax-induced diversions of sales to other jurisdictions, including purchases from remote vendors made over the Internet or via mail order. Indeed, any state, even one as large as Texas, is essentially a “small open economy” in the sense that it is too small to have much if any effect on the rate of return to capital or the prices of goods that are determined in national or international markets. In other words, the elasticity of supply of capital to the state, as well as the elasticity of demand for goods that are traded on national or international markets, are both very high, so that taxes on capital or tradable goods will be highly inefficient. As will be discussed in the following section, one can argue that such taxes are thus counterproductive from the viewpoint of Texas residents.

State taxes distort a wide variety of other decisions made by individuals and firms, so that excess burdens in many areas must be considered in evaluating the overall efficiency properties of alternative tax structures. Most of the academic literature on tax-induced inefficiencies has focused on distortions of labor supply decisions, saving decisions, and business investment decisions, as well as decisions regarding the choice of organizational form, risk-taking, financial structure, and various consumption choices. In addition, as described above, taxes can distort

political decisions regarding the level and composition of public services. Non-benefit-related taxes create situations in which individuals who benefit from public services but don't pay a fair share of their cost support inefficient overspending on public services. In addition, the "visibility" of a tax may affect public spending levels, as there may be a bias toward excessive government spending to the extent the costs of financing government programs are "hidden." In general, business taxes and indirect taxes, such as the sales tax or a value-added tax are perceived to be less visible than taxes assessed directly on individuals, such as a personal income tax. A related point is that the use of taxes on mobile factors of production, especially capital, and to a lesser extent highly skilled labor, can result in underspending, as state and/or local governments are reluctant to impose a tax on highly mobile factors of production. On the other hand, to the extent that the public perceives that state taxes on businesses can be exported to the residents of other states, a tendency for overspending is likely—although the previous discussion suggests that opportunities for such tax exporting are limited. Finally, taxes that increase less or more than proportionately with the economy may result in a systematic tendency for expenditure levels that are too low or high, respectively, at least in the short run before the appropriate adjustments can be made in the tax system.

Equity

Discussions of the equity properties of alternative tax systems are inevitably quite contentious, as perceptions of fairness are inherently subjective. Nevertheless, it is possible to provide some structure to discussions of tax equity. In particular, economists typically evaluate alternative tax systems in terms of two competing principles of equity—the benefit principle and the ability-to-pay principle.

The Benefit Principle

The benefit principle defines an equitable tax system as one under which individuals (and businesses) pay tax—a "benefit tax" or "user charge"—in accordance with the benefits they receive from public services. Thus, under a benefit tax system, redistribution is undesirable by definition, as the benefit principle requires that taxpayers pay for the services they utilize. Underlying the benefit principle is the implicit assumption that the existing distribution of income is socially acceptable. From the perspective of Texas residents, this can be interpreted as

assuming that the income redistribution that occurs at the national level is sufficient to achieve an equitable distribution. As noted above, benefit taxation is also highly desirable from the perspective of economic efficiency. However, in practice, it is often quite difficult to apply the benefit principle, as determining benefits received as well as structuring taxes to correspond to those benefits is problematic.

The Ability-to-Pay Principle

A very different concept of tax equity is provided by the ability-to-pay principle. Under this approach, taxes are considered largely in isolation from public services, which are assumed to be determined independently of the tax system or simply assumed to be fixed. Given the level of public services, the ability-to-pay approach attempts to determine the appropriate distribution of the tax burden. Proponents of the ability-to-pay approach evaluate tax systems in terms of two critical concepts. First, “horizontal” equity requires that individuals with equal ability to pay tax should pay the same tax. Second, “vertical equity” requires that individuals with more ability to pay tax should pay more tax. Beyond this characterization, however, opinions differ greatly on what vertical equity requires, with most discussions focusing on whether a tax system is proportional, regressive, or progressive with respect to ability to pay.⁶

Applying these notions of horizontal and vertical equity naturally requires accurate measures of tax burden and ability to pay tax. Although most analysts have historically compared annual tax burdens to annual income, this approach has recently been called into serious question. In particular, some researchers have argued that annual income is a poor measure of ability to pay tax, and that some longer term measure of taxpaying capacity—ideally, lifetime income—is a superior index of taxpaying capacity. Two arguments support this position, both of which are related to the empirical observation that individual consumption tends to be considerably more stable over time than individual income.

⁶ A progressive (regressive) tax system is typically defined as one where the fraction of income paid as taxes increases (decreases) with income.

The first argument is based on the idea that individual consumption behavior follows the “permanent income hypothesis,” under which individuals make their consumption decisions based on an estimate of their “permanent” income, defined as average income over a long time horizon, so that consumption fluctuates much less than income. For example, individuals with a temporary increase in income will save much of that increase, spreading the increase in income over consumption in many periods. Similarly, individuals who experience a temporary decrease in income will draw down their savings to maintain their consumption levels. If one accepts this view, an estimate of permanent income is a better measure of ability to pay than annual income.

The second argument for a longer term or even lifetime approach to measuring ability-to-pay taxes draws on the “life-cycle” model of individual behavior. This model posits that individuals go through three phases of consuming and saving during their lives: consuming and borrowing in their early years, saving to repay debt and finance retirement consumption during their peak earning years, and financing consumption (and perhaps the making of bequests) by drawing down their savings during their retirement years. As in the case of the permanent income hypothesis, the life-cycle theory implies that some estimate of lifetime income is a better measure of ability to pay than is annual income.

For purposes of this discussion, the most important implication of these arguments is that annual measures of tax burden overstate the regressivity of consumption taxes and the progressivity of income taxes. Numerous empirical studies, which either use annual consumption as a proxy for lifetime income or use longitudinal data to construct an estimate of lifetime income, support these arguments. For example, several studies have found that sales taxes or other consumption taxes are roughly proportional with respect to lifetime income, or roughly proportional except for the highest income classes where they become somewhat regressive.⁷ Although the lifetime approach is still controversial (Barthold 1993; Reschovsky 1998a), it has considerable theoretical and intuitive appeal, and the studies noted above have made considerable progress in making the

⁷ For example, see Metcalf (1994), who focuses on state and local taxes, as well as Fullerton and Rogers (1991, 1993), and Casperson and Metcalf (1994).

concept operational empirically. Indeed, even tax burden incidence studies based on annual income often make various adjustments in an ad hoc attempt to correct for some of the problems noted above. For example, Fritz (1989) adopted this approach in his analysis of the incidence of the Texas tax system. Accordingly, the following analysis will emphasize lifetime income considerations in evaluating the equity properties of alternative sources of tax revenue for Texas. Nevertheless, it must be noted that most incidence analyses are instead conducted with respect to annual income. A standard result of such studies is that the sales tax is fairly regressive. This includes the analysis of the Texas tax system conducted by the State Comptroller, who finds that the burden of the sales tax as a percentage of annual income varies from 10.7 percent for the lowest decile and 5.0 percent for the second lowest decile to 2.4 percent for the ninth decile and 1.6 percent for the top decile.⁸

In addition to the issue of the appropriate degree of tax progressivity, a central aspect of vertical equity is the treatment of very low income individuals. On one view, fairness requires that the very poorest members of society should be exempt from contributing to the financing of public services. This view clearly underlies the federal personal income tax structure, as the standard deduction and personal exemptions imply that income roughly equal to that associated with the poverty level is tax free. An alternative view of tax equity is that all citizens, regardless of income level, should make at least some contribution to financing public services. This view presumably implies that proportional taxation of low income individuals, with few if any exemptions or deductions, is equitable.

Finally, another dimension of equity is transitional equity, which refers to reform-induced changes in wealth that occur when the tax system is changed unexpectedly. Such wealth changes can be viewed as arbitrary and capricious and thus undesirable from a social perspective (Zodrow 2002). Most of the proposed reforms of public school finance in Texas involve dramatic reductions in local property taxes. On an annual basis, such reforms would on average not result in dramatic changes in the incidence of state tax burdens. The burden of the property

⁸ See Texas Comptroller of Public Accounts at http://www.window.state.tx.us/taxinfo/incidence/table1_49.html.

tax in a single state is probably borne roughly in proportion to consumption, and is thus somewhat regressive with respect to annual income and roughly proportional with respect to lifetime income; reduced property taxes would under most reform proposals be replaced with taxes that, as will be discussed below, have a similar incidence (Courant and Loeb 1997). Nevertheless, the changes in the property tax would be likely to result in significant changes in property values, which would fully or at least partially reflect or “capitalize” not only the current but also the future fiscal effects of any reform package (Fischel 2001). To the extent that property taxes were reduced in general, all property values would increase due to these capitalization factors. However, there would also be important differential effects across local jurisdictions. In particular, residential properties in areas that pay relatively high taxes in comparison to benefits received (e.g., those in the ten percent of Texas jurisdictions that are currently “property-rich” districts under the state’s Robin Hood plan for redistributing property tax revenues) would see an even larger increase in their property values. By comparison, residential properties in areas that pay relatively low taxes in comparison to benefits received (e.g., those in the ninety percent of jurisdictions that are classified as “property-poor”) would see a smaller increase in their property values. Thus, an inherent characteristic of the school finance reforms being contemplated is that the reform would increase property values, especially those in property-rich districts. Indeed, since the incidence of most of the tax substitutions being considered would be roughly proportional to lifetime income, these wealth effects of reducing property taxes may be the most important distributional effects of school finance reform.

Simplicity

The third criterion commonly used by public finance economists to evaluate alternative tax systems is simplicity. A simple tax system will minimize the amount of scarce resources that must be used in both compliance and administration. In the state context, it is important to note that simplicity must be defined in terms of the incremental costs associated with administering and complying with the state tax system. For example, if Texas were to adopt a state personal income tax based directly on federal personal income tax liability, administrative and compliance costs would be relatively low, even though the federal tax is notorious for its complexity. It should also be noted that high compliance costs are disproportionately burdensome to small and emerging firms that typically do not have easy access to tax accounting expertise.

Revenue Stability

Since the state government in Texas, as in most states, is subject to a balanced budget constraint, revenue shortfalls are highly problematic from both a political and an economic standpoint. Thus, revenue stability is a desirable characteristic of the state tax system. The criterion of revenue stability has two dimensions.

First, revenues should increase roughly proportionately with the growth of the state economy, or at least at the rate of inflation. (In the former case, the need for government services is assumed to grow proportionately with income, while in the latter case, the implicit goal is a constant level of real government expenditures.) An often-noted problem in Texas has been that the growth in the sales tax base has not kept pace with growth in the state economy, resulting in periodic revenue shortfalls. This trend seems likely to continue, especially as an aging but wealthy society increases its consumption of largely untaxed health care, personal care, and leisure-related services (Mazerov 2003). Nevertheless, the disproportionate growth of services is not likely to be as significant as it has been in the past. Thus, the magnitude of the revenue stability problem associated with exempting many services from the sales tax is declining over time, although the revenue cost associated with this practice continues to increase.

A second potential criterion is that revenues should be roughly constant over the business cycle in order to minimize fluctuations in essential public services. In general, this argues against the taxation of business income and personal capital income, which are relatively cyclical, and for the taxation of personal consumption, especially of essential goods, which as noted above, tends to be more stable than personal income. At the same time, the criterion of revenue stability over the business cycle is less important to the extent that the Economic Stabilization Fund in Texas or “rainy day fund” is well-funded and well-managed. In addition, note that some reduction in public service consumption during an economic downturn may be desirable in order to mitigate cyclical reductions in private consumption.

IV. Evaluating Tax Revenue Options in Texas

This section will use the criteria described above to evaluate alternative sources of state tax revenue in Texas. The analysis will first define some general directions for Texas tax policy and reform of the current system, and then evaluate a wide variety of specific tax reform options.

General Directions for Reform

The discussion thus far suggests several general directions for reform of the Texas state tax system. These are considered in turn below.

Expand Benefit Taxes

A clear implication of the previous discussion is that benefit and environmental taxes should be used to the maximum extent feasible. This is particularly true for benefit taxes for public services provided to businesses, especially to the extent that the state follows the recommendation, made below, to reduce non-benefit taxation of businesses.

The most obvious form of benefit taxation is user charges. Some empirical data suggest that Texas is fairly average in the extent to which it relies on user charges. Nevertheless, these data suggest some potential for increasing the extent to which the state relies on user charges. Specifically, in 1999 the ratio of a broad definition of user charges to total state and local own-source revenue in Texas was 0.297, with the state ranking 18th out of the 50 states in this category. By comparison, the state with the highest ratio is Tennessee (0.471).⁹ Thus, if Texas were to raise its utilization rate to that of Tennessee, total state and local user charges would rise by roughly 59 percent; in 1999 this would have implied an increase in total state and local user charge revenue of \$13.9 billion, from \$23.5 billion to \$37.4 billion. Although this calculation is obviously a very rough one that ignores a variety of factors, including especially differences across states in expenditure mix, it does suggest that it would be worthwhile to investigate the

⁹ See U.S. Census Bureau, Government Finances. Table No 420, State and Local Governments: Revenues by State 1999 at <http://www.census.gov/prod/2003pubs/02statab/stloggov.pdf>. This calculation follows Netzer (1992, 504).

extent to which reliance on user charges by the state government—as well as by local governments, which provide many of the services most amenable to the implementation of user charges—could increase.

Finally, note also that businesses receive some benefits from the provision of quality K-12 education. For example, businesses can more easily attract high quality workers if the local education system is of high quality, and may receive other benefits from an educated local population, beyond those that are fully reflected in business costs as higher wages. However, these benefits to business would seem to be small relative to the benefits enjoyed by the direct consumers of education (Taylor 1999). Thus, the benefit principle provides only limited support for the taxation of business property to finance education expenditures, so that most school taxes applied to businesses should be viewed as non-benefit taxes applied to capital.¹⁰

Limit Progressivity and Minimize Tax Burdens on the Very Poor

As discussed above, the appropriate degree of progressivity of a tax system is always a controversial issue. This is especially true at the national level, although reforms in recent years in the U.S. and around the world suggest that social tastes for highly progressive marginal rate structures have diminished in recent years. In any case, the question of the optimal progressivity of the tax system is somewhat easier to resolve at the state level for two reasons.

First, progressive marginal tax rates at the federal level imply that significant redistribution through the tax system occurs independently of state tax policy, thus reducing any need for redistribution at the state level. For example, Burman and Saleem (2004) estimate that the average tax rate for a couple filing jointly with two children varies from -40 percent at an

¹⁰ In addition, environmental fees provide another source of revenue that could be utilized to an increasing extent in Texas, although state governments in the U.S. typically do not rely on environmental taxes and fees to any large extent. Cordes (1992) reports that in 1989 Texas raised \$10.6 million from this source, ranking 13th among the states in total revenues raised from environmental taxes and fees. See also Rabe (2003).

adjusted gross income (AGI) of \$10,000,¹¹ to 8.4 percent at an AGI of \$100,000, to nearly 24 percent for households with an AGI of \$1,000,000.¹²

Second, concerns about individual mobility suggest that a highly progressive state tax structure is likely to be counterproductive, as it would tend to drive high-income individuals out of the state and perhaps attract low-income individuals. Indeed, in a recent study Feldstein and Wrobel (1998) suggest that the mobility of high-income individuals is sufficiently great that changes in gross wages will completely offset any changes in state income taxes within the space of a few years, so that states have virtually no power to redistribute income. That is, Feldstein and Wrobel argue that attempts to redistribute income at the state level will lead to an inefficient out-migration of skilled labor, increasing the wages of scarcer high-skilled labor while lowering the wages of relatively plentiful low-skilled labor. The net result is that the tax burden is ultimately borne by relatively immobile low-skilled labor (or owners of land).¹³ This result, which implies perfect mobility of high-skilled labor over a rather short period of time, is quite strong and has been questioned by Reschovsky (1998a) who reviews the literature and concludes that it suggests that the mobility of high-skilled labor is not sufficiently great to imply that any progressivity of a state tax structure is counterproductive. Nevertheless, the possibility that a highly progressive state tax would drive out high-skilled workers to at least some extent, coupled with the historical reluctance of Texans to utilize any form of progressive personal income tax, suggests that the state should limit consideration of alternative revenue sources to roughly proportional taxes.

¹¹ This negative average tax rate reflects the refundable earned income and child care tax credits.

¹² Note also that even if the state tax system is roughly proportional or moderately regressive, it may still involve redistribution from the rich to the poor, since the consumption of many state public services does not increase significantly, if at all, with income.

¹³ Note that this argument is largely independent of the fact that most other states in the union currently have an income tax. The argument assumes that the combination of state income taxes in most other states, coupled with no income taxes in Texas and a few other states, has resulted in an equilibrium in which households are relatively indifferent among states, given their existing tax systems. If Texas were to implement a reform such as a progressive income tax that resulted in a higher net tax burden on relatively high-income individuals, the analysis of Feldstein and Wrobel (1998) implies that such individuals would move to other states until after-tax incomes were such that a new equilibrium, with individuals again relatively indifferent among alternative locations, was attained.

There is, however, one important qualification to this suggestion. Specifically, the cost of a state income tax, taking into account federal deductibility, is lower for individuals who itemize deductions, with size of the benefit proportional to the individual's federal marginal tax rate. Both marginal tax rates and the likelihood that a taxpayer itemizes deductions increase with income. Thus, a modest degree of nominal state income tax progression would be required for the actual burden of a state income tax in Texas, after federal taxes, to be proportional on average. Accordingly, consideration of potential reforms in this paper will be restricted to taxes that are "roughly" proportional, perhaps taking into account federal income tax deductibility.

Finally, longstanding practice in Texas—particularly the exemption from sales tax of commodities considered to be consumed disproportionately by the poor—suggests a desire to minimize the burden of the state tax system on very low-income individuals. That is, there seems to be little societal or political inclination to ensure that all Texans, even those at the very bottom of the income distribution, contribute to the financing of public services in proportion to their income or consumption levels. Accordingly, the analysis in the rest of the paper will assume that equity concerns imply that the state tax burden on very low-income individuals should be minimal or even zero.

Reduce Non-Benefit Taxation of Mobile Capital

Although the case for benefit taxation of businesses is compelling, a straightforward application of the criteria presented above suggests that the rationale for additional source-based (i.e., production-based) state-level business taxes in Texas is surprisingly weak. The argument, which is based on the idea that any state can be modeled to a first approximation as a small open economy (Gordon 1986; Razin and Sadka 1991; Oakland 1992), proceeds as follows.

As noted previously, any state—even one as large as Texas—is not large enough in the national or world economy to appreciably affect the rate of return to capital. Instead, since capital is in the long run highly mobile, the return to capital is determined in national and increasingly international markets. This implies that, to the extent that capital is perfectly mobile, the owners of capital invested in the state will bear none of the burden of a state-level tax on capital income. Instead, capital will leave the state until the before-tax rate of return to capital invested in the

state rises by enough to entirely offset the tax. This emigration of capital lowers the productivity of the fixed factors in the state: land and labor (or at least relatively immobile labor, if relatively high-income labor is also quite mobile, as discussed above). As a result, these local factors of production ultimately bear not only the entire burden of the capital income tax but also its “excess burden” or efficiency costs. The implication of this analysis is that, solely from the viewpoint of Texas residents, it is preferable simply to tax local factors (land and relatively immobile labor) or local consumers directly, and thus avoid at least the excess burden of the tax on capital income. Note also that the analysis implies that any progressivity suggested by state level taxation of capital income is illusory, as such taxes are shifted to local factors of production and are thus borne roughly in proportion to wage income or consumption of non-traded goods.

Not surprisingly, there are a variety of counterarguments to this rather stark proposition. A business income tax can serve an important function as a backstop to a state personal income tax (so that personal income retained at the business level does not escape taxation), but this argument is irrelevant in the absence of a personal income tax in Texas. More important, some businesses may have market power in national or international markets or earn above-normal economic profits (economic rents) for other reasons, which can, especially if the rents are tied to location in the state, be taxed without causing inefficient capital out-migration. Virtually all states—and indeed all countries in the international context—tax corporate income in order to capture some of these rents (Zodrow 2003a). Note, however, that the desire to tax economic rents does not necessarily imply that a state should utilize a corporate income tax (although it is by far the most common tax instrument used to achieve this goal). In particular, economic rents are also captured by the various forms of value-added taxes (VATs), as discussed below; indeed, one of the major advantages of the consumption-based versions of these VATs is that they are relatively non-distortionary since they do not tax the normal returns to capital while taxing economic rents at the full statutory rate (Zodrow and McLure 1991).

A separate issue is that capital may not be as responsive to tax factors as suggested by the analysis presented above. Although early empirical studies were consistent with this viewpoint, the most recent (and most carefully done) work suggests that investment is in fact relatively

responsive to state and local taxes (Bartik 1991, 1994; Wasylenko 1997). Finally, but perhaps most important, some level of non-benefit business taxation may be indispensable politically.

These qualifications—and political realities in Texas—suggest that elimination of all non-benefit taxation of businesses is unlikely. Nevertheless, the current level of taxation of business (described above) is almost assuredly in excess of the benefits of public services received, so the balance of the report will assume that some reductions in state business taxes would be appropriate. Support for this position is provided by Taylor (2003a), who argues that Texas businesses pay considerably more in business taxes than they receive in public services, even taking into account business benefits from education, and that the relatively high tax burden imposed on business capital in Texas has played an important role in limiting the growth of the capital stock in the state.

Avoid Taxation Based on Gross Receipts

The final general direction for reform of the Texas tax system to be used in this report is that the state should avoid the introduction of any new taxes on gross receipts—including proposals for so-called “license fees” that are based on gross receipts—and reduce reliance on taxes with economic effects that are similar to those of gross receipts taxes.

On efficiency grounds, gross receipts taxes are problematic because they are primarily taxes on business inputs and such taxes are in general a relatively inefficient source of revenue.¹⁴ Moreover, gross receipts taxes are a particularly undesirable form of taxation of business inputs, because they result in highly inefficient tax pyramiding, as multiple layers of taxation are applied to those products whose inputs happen to be transferred among firms at various stages in the production process. Under these circumstances, even a modest tax on gross receipts can compound into a high effective tax rate. The result is a haphazard pattern of effective tax rates across business inputs, which inefficiently distorts firm decisions regarding input choices. The

¹⁴ Indeed, one of the basic tenets of the branch of public finance known as optimal taxation theory is the “production efficiency theorem” which states that—under the appropriate circumstances—taxes on business inputs should be avoided entirely. For qualifications to this result, see Slemrod (1990).

resulting increases in the effective tax rate on capital income also drive capital out of the state (as stressed above) and hamper the export prospects of Texas businesses that must compete with firms in states that have tax systems that impose lower tax burdens on business inputs. In addition, the tax pyramiding attributable to gross receipts taxes creates a tax bias toward vertical integration (organizing the production process so that multiple steps are carried out within a single firm), as firms attempt to reduce their exposure to the gross receipts tax. This reduces the efficiency of resource use in the state, especially if there are economies of scale in producing some of the inputs to the production process. Note also that a bias toward vertical integration implies a bias against small firms, especially those that might be able to provide low cost services to larger firms but would operate at a cost disadvantage (relative to in-house production) due solely to the tax. Moreover, to the extent that tax pyramiding is shifted forward as higher consumer prices (e.g., for locally produced and consumed goods), it results in a haphazard pattern of consumer price distortions that inefficiently distort consumer decisions. Finally, it must be emphasized that, as described above, the sales tax and the franchise tax in Texas have significant gross receipts components. Thus, a new gross receipts tax would exacerbate existing distortions, so that its efficiency cost would be relatively high.

Gross receipts taxes are generally undesirable in terms of other tax criteria as well. To the extent they are shifted forward as higher prices, gross receipts taxes are inequitable since they penalize those individuals who prefer to consume highly taxed goods. Since they impinge to a large extent on business inputs, the revenues of gross receipts taxes tend to be fairly cyclical (although they do tend to grow proportionately with the economy). A gross receipts tax is also a “hidden” tax, especially since the portion that is applied to business inputs is relatively high, and thus likely to promote inefficiency in political decision making. The primary advantage of a gross receipts tax is that it is relatively simple, in terms of both compliance and administration. This simplicity is the main reason that gross receipts taxes are popular in the developing world. However, in developed countries in which most businesses have well functioning accounting systems (and indeed must have such systems to comply with the federal income tax), this advantage is minimal and far outweighed by the costs described above. Finally, it should be noted that the relatively low nominal tax rate that obtains under a typical gross receipts tax is not an advantage. Once tax pyramiding is taken into account, the effective tax rate that occurs under even a low-

rate gross receipts tax can be quite high. Moreover, a low nominal rate can be used to create the artificial perception of low-cost public services and thus create a bias toward undesirable over-expansion of the public sector. Thus, on balance, a tax on gross receipts is an unusually poor tax instrument, and Texas should avoid the introduction of new gross receipts taxes and reduce reliance on existing taxes with the characteristics of gross receipts taxes.

An Evaluation of Specific Tax Reform Proposals

A wide variety of specific tax reforms is evaluated in this section in terms of the tax criteria detailed above and in light of the general directions for reform specified in the previous section. The analysis begins by discussing some modest reforms of the existing system, turns next to a number of more sweeping reforms of the existing system, and concludes by examining several new forms of taxation.

Broadening the Sales Tax Base

As the largest single source of state tax revenue, the general sales tax is an obvious source of additional state tax revenue. The State Comptroller estimates that an increase in the state sales tax rate of one percentage point (to 7.25 percent) on the existing base would increase annual revenues by \$1.9 billion. If this were accompanied by a one percentage point increase in the motor vehicles tax rate (also to 7.25 percent), the revenue increase would be \$2.3 billion. However, such a rate increase would result in Texas having the highest sales tax rate in the nation. The evaluation of such an approach depends critically on the nature of the base broadening being envisioned, specifically on whether the goods and services that are newly included in the base are consumed by individual consumers or businesses.¹⁵

Consumer Goods and Services

In general, expanding the base of the Texas sales tax to include a wider variety of consumption goods, especially consumer services, would be desirable. The primary caveats are that base

¹⁵ The following discussion draws on Hendrix and Zodrow (2003); see also Fox and Murray (1988), Quick and McKee (1988), Fox (1992), and Mazerov (2003).

expansion should be avoided for goods or services for which administrative costs are prohibitively high (very small service providers) or for goods that are deemed to be social “merit goods” that should be exempt from tax, such as education, health care, and certain other government services. As described above, Texas is somewhat above average in the extent to which it taxes consumer services, but considerably below those states that most comprehensively tax consumer services. Thus, a wide variety of consumer services could potentially be taxed.

Estimates of the revenue gains from taxing services suggest they would be significant, although it is difficult in some cases to separate the revenues attributable to taxing consumer services from those due to taxing business services. For example, the State Comptroller estimates that in 2002, sales tax revenues would increase by roughly \$0.9 billion (6.2 percent of total sales tax revenues of \$14.5 billion) from bringing the following consumer services into the sales tax base: labor used in residential construction (as a proxy for taxing housing services); residential repair and remodeling services; barber shop and beauty salon services; funeral services; child day care; miscellaneous personal services; automotive maintenance and repair; car washing services; travel arrangement services; and interior design services.¹⁶ At the same time, this figure represents only roughly 21 percent of the Comptroller’s estimate of the total revenue that could be obtained from taxing a wide variety of services, including business (including medical, legal, and accounting) services, educational services, and labor used in nonresidential construction (\$4.3 billion). Thus, as has been observed in other states, the vast majority of currently untaxed services are either business services that should not be taxed under a consumption-based tax or services that are unlikely to be taxed for social reasons (Hendrix and Zodrow 2003).

The case for expanding the base of the sales tax to include as many consumer goods as possible can be made on many fronts. On efficiency grounds, many—although by no means all—economists argue that taxation on the basis of consumption is inherently preferable to taxation on the basis of income. The basic arguments are that consumption taxes do not

¹⁶ See Texas Comptroller of Public Accounts, Tax Exemptions and Tax Incidence Report, Table 3, Limited Sales and Use Tax, at <http://www.window.state.tx.us/taxinfo/incidence/table6.html>.

discourage individual saving, do not create tax disincentives to investment, and avoid many of the complexities associated with measuring real income accurately. By comparison, income taxes increase the price of future consumption and thus create a disincentive for saving and distort both the level and (typically) the allocation of investment, and attempts to measure income accurately, especially in the presence of inflation, account for much of the complexity of the current federal income tax.¹⁷ Although these arguments are most important at the national level, state taxes based on consumption avoid exacerbating the problems associated with the federal income tax. However, the advantages of using a consumption-based tax system at the state level can be obtained only if Texas is in fact administering a tax that has a broad-based measure of consumption as its base. In addition, uniform or neutral (rather than differentiated) taxation of all consumption expenditures is likely to be relatively efficient.¹⁸ Note also that a uniform tax on consumption goods is a relatively “visible” tax (especially relative to a tax on businesses) and thus, as discussed above, tends to promote efficiency in political decision-making. Accordingly, the analysis will assume that a “neutral” tax system that taxes all consumer goods uniformly is desirable on efficiency grounds to reduce distortions of consumer decisions, and that a movement toward greater neutrality by expanding the sales tax base to include more consumer goods, including currently untaxed consumer services, will generally improve economic efficiency (Hatta 1986). In the especially relevant case of the treatment of consumer services, some empirical support for this proposition is provided in a recent work by Merriman and Skidmore (2000), who conclude that perhaps one-eighth of the recent increase in the relative size of the service sector is attributable to sales tax differentials favoring that sector.

¹⁷ For reviews of the advantages and disadvantages of consumption and income taxes, see Bradford (1986) and Zodrow and McLure (1991); for a recent collection of articles on this issue, see Zodrow and Mieszkowski (2002).

¹⁸ The optimal taxation literature shows that uniform taxation, which would not distort consumer decisions across consumption commodities, is desirable under certain conditions, especially if distributional concerns are addressed with the (federal) income tax. More generally, a differentiated commodity tax structure is desirable, as goods that are relatively inelastically demanded or consumed disproportionately by the rich should face relatively high tax rates. However, since these factors tend to offset one another, a uniform tax may not be far from optimal. This is especially true once one takes into account the difficulties of administering differential rates, and the likelihood that any sales tax rate differentials will be determined by political factors rather than efficiency considerations.

On horizontal equity grounds, taxing a broader base of consumer goods is also desirable because it avoids discriminating against individuals whose tastes favor taxed goods. In terms of vertical equity, expanding the tax base may reduce the regressivity of the sales tax (with respect to annual income) if the newly taxed goods tend to be disproportionately consumed by the rich. This could be the case with many consumer services, although empirical evidence on this point suggests that this effect will be small (Siegfried and Smith 1991; Due and Mikesell 1994). A more difficult issue is whether expanding the sales tax base to include items that are exempt for distributional reasons (for example, food consumed at home, prescription medicines) is desirable on vertical equity grounds. The critical point in thinking about this issue is that sales tax exemption of goods consumed disproportionately by the poor is an extremely poorly targeted means of achieving distributional goals, since the benefit of exemption accrues not only to the poor, but to the rich as well. Indeed, in absolute terms, the rich will typically benefit more from the sales tax exemption of virtually any good, even if the proportional benefit of exemption declines with income. As a result, achieving distributional goals with sales tax exemptions is very expensive in terms of revenues forgone, and thus implies significantly higher tax rates.

A preferable approach is to eliminate or significantly curtail these sales tax exemptions and couple such a reform with a means-tested sales tax rebate that would approximately offset sales tax paid up to the amount paid on some minimum level of consumption (for example, the poverty level). This approach would minimize the revenue loss (and thus the rate increases) required to achieve any particular distributional goal. Some states administer such rebates under their personal income taxes (Johnson and Lav 1998). However, in the absence of a state personal income tax in Texas, the rebate could be administered as a stand-alone program, using information provided by (and perhaps administered in conjunction with) other state and federal programs affecting the poor, especially the Lone Star Card (used for food stamps and welfare payments), or perhaps the federal Earned Income Tax Credit, and the Social Security system. This approach obviously involves some increased administrative and compliance costs, especially with respect to identifying individuals eligible for the rebate and ensuring that they file for them, delivering the rebates, and limiting fraudulent claims (Johnson and Lav 1998). Nevertheless, it seems likely that it would be a less expensive means of achieving distributional goals than exempting certain commodities under the sales tax. Such an approach would be

especially beneficial to the poor, with the burden of the sales tax increase roughly proportional to lifetime income or regressive with respect to annual income for all other income groups.

In terms of simplicity, taxing a broader consumption base implies that some new goods, including previously untaxed services, would be brought into the tax base, which would increase administrative costs; exempting small service providers would mitigate this problem. In addition, if consumer services are taxed while business services are exempt, the owners of businesses will face an incentive to disguise the purchase of personal services as business expenditures, including tied arrangements with service providers where high-priced tax exempt business services are bundled with low-priced or free personal services. On the other hand, uniform taxation of consumption goods reduces the costs associated with differentiating between taxable and tax exempt goods, and thus lowers administrative costs.

Taxing a broad measure of consumption generally increases tax stability since demand for both consumer services as well as consumption necessities is relatively non-cyclical, especially relative to the demand for consumer durables. Stability with respect to economic growth improves because a broader sales tax base, especially one that includes more consumer services, will tend to grow proportionately with the economy (Dye and McGuire 1992).

Business Goods and Services

Expanding the base of the sales tax could also include taxing additional business inputs, especially services provided to businesses. Unfortunately, the case for such an expansion of the base of the sales tax is far weaker than the case for taxing consumer services. The essence of this argument is that expanding the sales tax base to include more business inputs exacerbates the glaring weaknesses of the current sales tax. It moves the system farther away from a tax on consumption, so that the benefits of consumption-based taxation are even less likely to be realized. But more important, it increases the extent to which the sales tax assumes the characteristics of a gross receipts tax, with all of the problems noted above.

From an equity perspective, taxing business inputs results in a haphazard pattern of incidence that creates horizontal inequities to the extent that tax burdens are shifted forward as higher

consumer prices, since tax burdens will vary depending on tastes for various goods. Because of this fairly random incidence, the impact of taxing business inputs on vertical equity is uncertain, although one might expect that it would be roughly proportional to consumption.

In terms of revenue stability, adding additional business inputs to the tax base, including business services, is likely to reduce stability over the business cycle, since business spending is more cyclical than consumer spending; this is especially true for certain business services, like advertising, that are highly pro-cyclical (Quick and McKee 1988). Taxing more business inputs, especially services, might increase the stability of revenues with respect to economic growth, but this effect would likely be relatively small; in particular, the ratio of total services to GDP has not increased nearly as much as the ratio of personal services to personal consumption, and indeed has been relatively stable in recent years (Hendrix and Zodrow 2003).

Expanding the tax base to include certain business services would also raise several thorny administrative issues. As noted above, application of sales tax to small vendors in many service sectors is relatively expensive in comparison to the revenue raised. In addition, consistent application of the sales tax to services would require taxing services purchased from out-of-state vendors. This is likely to be even more difficult than in the troublesome case of tangible goods, as most out-of-state service providers will not have a physical presence (nexus) in Texas and will thus not be legally required to collect the tax. Although Texas firms would legally be required to pay “use tax” on such purchases, enforcing this requirement would be difficult. To the extent that the use tax is not effectively enforced, Texas firms would face a strong incentive to purchase services from out-of-state vendors. One offsetting factor, however, is that administrative and compliance costs would fall for vendors who already sell both taxable goods and previously untaxed services, as the need to separate taxable and non-taxable items would be eliminated.

Increasing Excise Taxes

An often-mentioned source of additional revenues is increases in the excise taxes applied to goods that are perceived to cause negative externalities (such as sin taxes and taxes on motor fuels). However, as noted above, excise tax rates in most states, including Texas, are in all likelihood already higher than those that could be justified on negative externality grounds.

Nevertheless, increases in excise taxes may be a relatively efficient source of revenue as demands for the affected goods are likely to be relatively inelastic, and cross-border smuggling should not be too much of a problem as long as the rates in Texas are not too high relative to those in other states (although this will become more of an issue with the growth of electronic commerce in the relevant goods). Moreover, some observers advocate increases in excise taxes on alcohol and tobacco on paternalistic grounds, as they create a tax disincentive that may discourage individuals, especially youths, from engaging in unhealthy behaviors. Similarly, proponents of increases in excise taxes on motor fuels argue that they would encourage conservation and reduce traffic congestion.

Increases in excise taxes are relatively regressive; this effect is mitigated but not eliminated if a lifetime view of tax incidence is used to measure tax burdens (Poterba 1989; Lyon and Schwab 1995). Increases in excise taxes are relatively easy to administer, given the existing tax collection structure, unless the increases result in rates that are so high relative to other states that monitoring smuggling becomes an expensive proposition. Given relatively price and income inelastic demands for the affected goods, excise tax revenues are relatively stable with respect to the business cycle, but tend to grow less than proportionately with the economy.

Increases in excise taxes are not likely to be a major source of new state revenue. However, a moderate amount of revenue, relative to the \$10 billion figure noted in the introduction, could be raised by increasing excise taxes in Texas to levels comparable to those in states that are fairly aggressive in using these tax instruments. For example, suppose that for each of the affected goods a reasonable target is for the excise tax rate in Texas to be the tenth highest state rate. (The current state tax rate applied to general sales and to sales of motor vehicles (6.25 percent) is the eighth highest in the country.) In this case, the combined increases in excise tax rates would raise a total of \$1.6 billion.

Reforming the Franchise Tax

The “small open economy” analysis of source-based taxes on capital income presented above, as well as the many distortions caused by the earned surplus component of the franchise tax, suggest that serious consideration should be given to reducing or indeed eliminating the

franchise tax in Texas, while simultaneously increasing reliance on appropriately designed benefit taxes on businesses or introducing an alternative business tax such as the value-added tax (discussed below). However, given current revenue constraints, the enactment of such a change may be difficult. An alternative approach is to improve the existing franchise tax, and this section will examine such potential improvements.

On efficiency grounds, the effects of the franchise tax depend on the nature of the business being taxed. For a sufficiently profitable business that operates largely or exclusively in Texas, the franchise tax, to a first approximation, acts as a surcharge on the federal corporate income tax. It thus exacerbates the many distortions of that tax, including distortions of decisions regarding capital-labor ratios, capital asset mix, financing and payout (Gravelle 1994). Increases in distortions of the choice of organization form are more modest, since the franchise tax applies to S-corporations and limited liability companies, although not to partnerships, business associations, and sole proprietorships.

The situation is much different for large firms that operate in many states. For such businesses, formula apportionment implies that the franchise tax is primarily a tax on the factors in the apportionment formula (since any change in profits in Texas has a relatively minor effect on the corporation's total profits). Since Texas uses a single factor formula with gross receipts as the apportionment factor, this implies the franchise tax is effectively a tax on gross receipts for such firms, and shares all the problems of gross receipts taxes stressed above. Thus, the franchise tax—whether applied to predominantly Texas firms or to multi-state enterprises that generate only a small fraction of their profits in the state—is among the state's most inefficient taxes.

Another interesting efficiency aspect of the franchise tax is the effect of its net assets component. As a tax on capital, this tax shares the problems of source-based taxation stressed above and, since it is based on net assets, it exacerbates the tax bias favoring debt finance under the federal corporate income tax. In addition, the net wealth-based component of the franchise tax acts as a minimum tax. As a result, it may create a bias against risk-taking, at least for firms with earnings such that they are near the boundary that defines whether they will be subject to the income or the net assets components of the tax. In this case, firms face the prospect that if their investments

are successful and the firms are profitable they must pay the income-based component of the tax, while if their investments are unprofitable, they still must pay the wealth-based component. Such asymmetric tax treatment creates a potentially important disincentive for risk-taking. One might expect that these problems would be particularly troublesome for small firms, especially those that are entirely or primarily based in the state. Although this argument creates a case for eliminating the net wealth component of the franchise tax, some alternative arguments related to revenue stability and benefit taxation (presented below) suggest that such a reform would be premature.

From an equity perspective, the “small open economy” analysis presented above suggests that, at least in the long run, the incidence of source-based taxes on capital income is roughly similar to that of a tax on wages or consumption. (The short run incidence would presumably be on the owners of businesses subject to the franchise tax.) Thus, the long run burden of changes in the franchise tax would be roughly proportional to lifetime income and regressive with respect to annual income. However, note that since the net wealth component of the franchise tax acts as a minimum tax, it could be justified on equity grounds as an efficiency-enhancing benefit tax. Specifically, to the extent that benefits are related to the size of the capital stock (although some measure of total in-state production would seem to be preferable on these grounds), a minimum tax ensures that firms pay some tax for the public services they consume, consumption that occurs regardless of whether the firm is profitable or not.¹⁹

From the standpoint of administrative simplicity, the earned surplus or income component of the franchise tax is relatively simple to calculate since it is based primarily on corporate income as defined for federal tax purposes. However, since the Texas franchise tax is based on the 1996 federal law, taxable businesses in Texas face additional complexity in that they must keep a separate set of books in order to comply with the state tax law. The inclusion in the franchise tax base of the compensation of the officers and directors of the business also adds considerable

¹⁹ Note, however, that businesses are also subject to local property taxes, which can also be viewed as benefit taxes.

complexity, as the definition of a corporate officer is not clear, resulting in frequent classification disputes. Moreover, the existence of the net asset component of the tax creates potentially significant complexity, since in making long run investment decisions firms must predict which of the two components of the franchise tax will apply at all future times.

In addition, the structure of the tax creates opportunities for tax avoidance. Most obviously, a corporation could reorganize as a partnership and avoid the franchise tax. Alternatively, state franchise tax liability can be virtually eliminated using the so-called “Delaware sub” strategy. Under this approach, a Texas corporation enters a partnership, typically as the general partner with a one percent ownership share, with a subsidiary organized another state (e.g., Delaware) that is a limited partner with a 99 percent ownership share. The partnership entity is of course not subject to the franchise tax, and under current law the limited partner subsidiary does not have nexus in the state. Thus virtually all of the income of the partnership is not subject to the franchise tax. The income of the out-of-state subsidiary is then distributed as dividends to the Texas parent, and is not subject to tax since dividends from subsidiaries are exempt under franchise tax provisions designed to avoid double taxation.

Although the treatment of such subsidiaries is largely a legal issue, two economic perspectives deserve mention, both of which, if applied to the Texas franchise tax, would significantly limit avoidance opportunities. First, from an efficiency perspective, if a state decides to impose a tax on businesses (that is not explicitly related to benefits received from public services), it should be applied to all businesses regardless of organizational form. In the case of Texas, this would imply extending the franchise tax to partnerships, business associations, and sole proprietorships. The only exception should be for small firms (currently defined in Texas as those with gross receipts under \$150,000, although this exemption level seems far too generous) on simplicity grounds with respect to both administrative and compliance costs.²⁰ Second, the legal rules used to determine in-state tax liability should attempt to reflect economic reality, even if only in

²⁰ Such an approach is adopted by Michigan’s Single Business Tax and New Hampshire’s Business Enterprise Tax, which apply to all forms of business, subject to fairly generous exemption levels. In addition, Illinois levies its income tax on partnerships and West Virginia levies its assets-based franchise tax on partnerships.

an approximate way. This implies that Texas should consider following the lead of many other states that impose business taxes and introduce some consolidation or combination provisions under which related entities are treated as a single entity for purposes of taxing that fraction of their combined income determined to be earned in the state.²¹ Similarly, Texas could follow many other states in defining nexus sufficiently broadly to include out-of-state entities that are limited partners in partnerships doing business in the state (again, subject to provisions that would exclude sufficiently small limited partners and perhaps certain passive investors).

From the perspective of revenue stability, the state franchise tax is—at one level—a relatively unstable tax, since its tax base is primarily highly cyclical corporate income. Moreover, in recent years revenues have been reduced because of the enactment of several tax credits as well as various successful court challenges. Nevertheless, as stressed by Texas Taxpayers and Research Association (TTARA) (2003), revenues from the franchise tax in Texas have been relatively stable in recent years, during a period that included a serious economic slowdown as well as expansion of credits available under the tax and increased use of tax avoidance strategies. Two factors explain this relative revenue stability. First, in contrast to most state corporate income taxes, the tax applies to subchapter-S corporations and limited liability companies, so that recent growth in these organizational forms has not resulted in a loss of franchise tax revenue. Second, the net assets component of the tax implies that even firms with losses (or low profit levels) must pay tax. Thus, TTARA (2003, 45) concludes that the “real story of Texas’ franchise tax is not one of eroding revenues, but it is one of surprising resilience in the face of a tremendous economic slowdown.”

Thus, if Texas decides to keep the franchise tax, the most important reform would be to enact some or all of the provisions described above in order to close existing loopholes. The State Comptroller’s office estimates that such reforms would raise \$0.24 billion.

²¹ Note that such rules should also eliminate opportunities to abuse small business tax exemptions by splitting up a single entity into numerous smaller entities, each of which falls below the “small business” threshold.

Expanding the Lottery

Like many other states, Texas has in recent years (since 1992) relied on a state lottery to supplement state tax revenues. The total revenue from the lottery is relatively small, \$1.39 billion in 2002 or 3.8 percent of own-source revenues. Clotfelter (forthcoming) reports that the share of own-source revenue from the lottery in Texas is above the average for the 38 states that had lotteries in 2000. Although lotteries will never become a major source of revenue, expansion of the lottery is another potential revenue source at the margin. For example, the Texas Comptroller has proposed that video lottery terminals be installed in racetracks in locations where voters have already approved gaming, and estimates that this would generate \$0.56 billion in annual revenue. As described by Clotfelter (forthcoming), expansion of the state lottery can, at least in principle, be evaluated on the same basis as other potential revenue sources.

The special characteristics of lotteries as both state production of a service and a source of tax revenues imply that their efficiency properties must be analyzed carefully. In running a state lottery, the state provides a service to its residents, a service for which there are no legal competitors, so that the state is in something of a monopoly position (although some legal and illegal imperfect substitutes exist, including legal lotteries in neighboring states). Moreover, a relatively high level of taxation of this service is the primary rationale for its provision by the state. These factors imply that the efficiency and equity properties of the state lottery can be analyzed from two perspectives: as the provision of a service and as the taxation of consumption of that service.

By legalizing the lottery, the state creates a new market that benefits consumers, despite a relatively high level of tax; the evidence to support this contention is clear, since consumers elect to play voluntarily. Thus, the combination of legalization and taxation generates net benefits, relative to the case in which lotteries are outlawed. Accordingly, as noted previously, the introduction of a state-run and state-taxed lottery is an example of an efficiency-enhancing tax, and some empirical estimates suggest that the efficiency gains from such an introduction, even taking into account the typically high level of taxation (but neglecting any negative external effects), may be quite large (Rodgers and Stuart 1995). Under this interpretation, tax revenues simply reflect the monopoly rents earned by the state as the sole legal provider of lottery services

in the state, and the effective tax rate on lotteries reflects the state's monopoly markup over the marginal cost of providing such services. Indeed, one could easily argue that lotteries should be designed to maximize state revenue.

Alternatively, if one assumes that the lottery is legal and the state should not take advantage of its monopoly position, the taxation component of lotteries can be viewed as an excise tax on consumption of that service that reduces consumption of lottery services, relative to the efficient competitive level. Under this interpretation, which appears often in the literature, the level of excise taxation applied to lotteries is typically quite large. In Texas, the effective tax rate is approximately 61 percent, with revenues equal to 38 percent of lottery expenditures, relative to a payout rate of 50 percent and administrative expenditures of 12 percent ($0.61=0.38/0.62$) (Price and Nowak 1999). This is somewhat higher than the average tax rate in the U.S., which is about 50 percent (Clotfelter, forthcoming).

Under this latter interpretation, lottery taxation causes efficiency losses analogous to those induced by excise taxation of other consumption items. The primary efficiency issue is thus whether the relatively high tax rate applied to lotteries can be justified on efficiency grounds. Several arguments support high levels of taxation. The demand for at least some lottery products may be relatively inelastic, suggesting that relatively high tax rates may be desirable on efficiency grounds. In addition, lotteries generate some external social costs, such as increased compulsive gambling and negative reactions from those morally opposed to gambling or state provision and encouragement of gambling, that in principle also justify higher taxes (as a means of compensating society for these costs or providing resources to help deal with them, such as assistance for compulsive gamblers). On the other hand, high tax rates on state lotteries may induce more illegal gambling. Nevertheless, on balance, these arguments suggest that relatively high tax rates on lotteries are justifiable on efficiency grounds. Since effective tax rates in Texas are already quite high, however, any new lottery revenues should probably come from new games rather than higher effective tax rates on existing games. The estimates by Rodgers and Stuart (1995) provide some supporting evidence for this point, as they suggest that the marginal excess burdens associated with tax rates typical of existing lotteries, neglecting any negative externalities, are very high relative to alternative sources of state revenue.

The primary objection to the use of state lotteries to raise tax revenue is that the incidence of the resulting tax burden is inequitable, falling disproportionately on the poor; that is, the lottery is a highly regressive tax. As in the case of efficiency, an evaluation of the equity properties of a lottery depends on the perspective adopted. For example, suppose, consistent with empirical evidence (discussed further below), that the fraction of income spent on lotteries declines as income increases. If one considers the combination of legalization and taxation, this expenditure pattern suggests that lotteries are in fact pro-poor: the benefits that consumers receive from participating in a legal lottery, as measured by their willingness to participate, given the pricing/tax structure, are disproportionately concentrated among the poor.²²

Alternatively, under the more common interpretation, if one assumes the existence of the lottery and that the state should not take advantage of its monopoly position in providing legal lottery services, then revenues simply reflect excise taxation of providing lottery services. In this case, as stressed by Clotfelter (forthcoming), the empirical evidence is “virtually unanimous” in demonstrating that the excise taxes applied to state lotteries are regressive. This implies that it is hard to justify expansion of the lottery on equity grounds, unless other tax (or expenditure) changes can be made simultaneously that would offset its regressive impact on the poor.

Critics of lotteries also often argue that their administrative costs are extraordinarily high. For example, in Texas, the estimates cited above indicate that administrative costs are about 12 percent of revenues. However, such figures are not informative in the case of lotteries, since the administrative costs include not only the costs of tax collection (of the excise tax on lottery sales) but also the costs of providing the service. There seems to be no particular reason to think that the administrative costs of collecting the excise tax component of lottery sales, given state provision of the lottery, are higher than the costs of collecting other excise or sales taxes and,

²² Note, however, that this argument loses relevance to the extent that consumer demands reflect addictive behavior or misinformation about the likelihood of winning the lottery.

indeed, since the sellers of lottery tickets must be monitored in any case, the administrative costs of using them to also collect the excise tax component of the tax may be small.

Lotteries are also notoriously unstable sources of revenue, as the amount of revenues raised depends on many factors that tend to vary significantly over time. These include changes in consumer tastes for various lottery products; the introduction of new games; the extent and effectiveness of advertising; the introduction and scale of operation of lotteries in nearby states and other competing products (such as gambling over the Internet); and even the actual outcomes of the lotteries themselves (lotto games become especially popular as the jackpots become huge when there are no winners for an extended time period). Thus, lottery revenues are not particularly likely to be stable with respect to economic growth or the business cycle. This is confirmed by Szakmary and Szakmary (1995) who demonstrate that lottery revenues are much more volatile than revenues from more traditional sources. However, they also note that the variations in lottery revenues (due primarily to the factors noted above rather than cyclical fluctuations) are not highly correlated with variations over time of other revenue sources. They argue that lotteries thus provide state governments with an attractive source of diversification of revenue risk, and show empirically that for most states adding a lottery actually stabilizes total revenues slightly (even though lottery revenues do vary significantly over time). Thus, as long as the lottery provides general revenues (as is the current situation in Texas) or, in the case of earmarked taxes (as is currently being debated), state government revenues can easily be reallocated across alternative expenditures, the results presented by Szakmary and Szakmary (1995) suggest that adding a lottery has little effect on overall revenue stability.

Finally, it should be noted that the payment of the implicit excise taxes in lottery games is not deductible. Indeed, lottery winnings are subject to federal income taxes, thus reducing further the expected returns to lottery participants.

Fundamental Reform of the Sales Tax

First under the general heading of more sweeping reforms of the Texas state tax structure is a thorough overhaul of the state sales tax. The discussion of the sales tax base broadening reform

options presented above suggests how this could be accomplished, and why it would be desirable, so the discussion here will be brief.

Fundamental reform of the sales tax would proceed in three steps. The first would be to broaden the base to include as many currently exempt consumption items as politically and administratively feasible, including most consumer services and goods that are exempt for distributional reasons. Second, the adverse distributional consequences of taxing the latter items should be offset with a means-tested rebate that would effectively exempt a level of consumption approximately equal to that associated with the poverty level, along the lines described above. Finally, all business inputs should be exempt from tax.

Such an approach would convert the Texas sales tax into a true tax on retail sales, as long recommended by tax experts specializing in the sales tax (Due and Mikesell 1994; McLure 2000). It would thus, as described above, achieve the efficiency, equity, simplicity, and revenue stability advantages associated with broadening the consumption tax base, exempting the poor from sales tax in a highly targeted and inexpensive (in terms of revenues foregone) manner, and avoiding the (often multiple) taxation of business inputs. Indeed, the latter feature suggests that such a reform package would be an effective and equitable pro-growth investment tool — more so than current ad hoc economic development efforts (Zodrow 2003).

A critical issue in effecting such a reform would be devising a means of exempting business inputs from tax. Under the current system, businesses are issued an exemption certificate that allows them to make tax free purchases. However, many goods are not eligible for exempt purchases, partly out of concern that such purchases would be diverted to personal consumption use. This approach has the unfortunate feature of relying on vendors to determine whether or not a sale should be tax exempt, a determination that vendors are ill-equipped to make. McLure (2000) suggests that businesses be allowed to purchase all business inputs on a tax-free basis, with business inputs defined as those that are deductible under the federal income tax and firms required to substantiate claims of business use of inputs upon audit.

Gillis, Mieszkowski, and Zodrow (1996) discuss an alternative approach that would be administratively more cumbersome but arguably less subject to abuse. Under this approach, businesses would have to pay sales tax on any purchases of “dual use” goods (those that are used as both business inputs and consumption items) and then apply for monthly or quarterly rebates of sales tax paid. This approach would involve additional administrative costs, as much revenue would be collected only to be refunded. Nevertheless, it might also be much less susceptible to evasion since businesses could evade tax only by fraudulently petitioning the tax authorities for a refund on purchases of personal consumption items (rather than merely misrepresenting their intentions to the vendor). As stressed by Mikesell (1997), businesses may be much more reluctant to explicitly misrepresent their purchases to the government than to an anonymous vendor at the point of sale. In addition, on policy grounds, Texas might elect to tax certain business expenditures that are allowed as (full or partial) deductions under the federal income tax, especially meals and entertainment expenses.

The net revenue impact of such a fundamental reform of the existing sales tax is unclear. Broadening the tax base to include more consumer goods, including consumer services as well as currently exempt consumption goods (net of any rebate program), would raise revenues, while eliminating the pervasive taxation of business inputs would reduce revenues.

Introducing a Personal State Income Tax

Another potential source of revenue for the state of Texas is the introduction of a personal state income tax. This reform faces formidable obstacles, as a state personal income tax is anathema to many Texans and to virtually all Texas politicians, who wish to maintain the image of Texas as a low tax state with no personal income tax. This sentiment is codified in the Texas Constitution, which precludes the introduction of a state income tax without a state referendum.

Nevertheless, a state personal income tax is sometimes suggested as a revenue option, especially as an alternative to greater reliance on an unreformed sales tax (McCown and Lavine 2004). The discussion above suggests that a state personal income tax should be roughly proportional—perhaps adjusting for the fact that the benefits of deductibility are greater for high-income households—and, like the federal income tax, should exempt the poor from tax. Despite

the vehement political opposition to any form of state income tax, such a reform, like all of the other approaches analyzed in this report, has both positive and negative aspects. These can be summarized as follows.

On efficiency grounds, a personal state income tax is a residence-based tax on Texas citizens. It thus avoids the problems of a production-based or source-based tax on capital income stressed above. Note that to the considerable extent the sales tax applies to purchases of business inputs, it shares the problems of a production-based tax. Thus, if a personal income tax were used to replace lost property revenues rather than an increase in the sales tax, the taxation of business inputs would decline, as would the many problems (described above) associated with such haphazard taxation of business inputs. Nevertheless, a state income tax would distort savings decisions, adding to the distortions attributable to the federal income tax, and—like any tax on wages, income, or consumption—distort decisions regarding labor supply. However, it would distort choices across consumption goods much less than the sales tax, which results in a haphazard pattern of effective consumption tax rates, due both to differential rates on consumption products (including zero rates in many cases) and pervasive taxation of business inputs. A state income tax would also have some tendency to drive high-income high-skilled workers out of the state in the long run. However, as long as the income tax were roughly proportional and imposed at a modest rate, these effects might be fairly moderate. Finally, a personal income tax would be more visible than the sales tax (especially the component that falls on business inputs), and thus would likely lead to more efficient political decision-making.

Many proponents of a state income tax argue that its primary advantage is that it is less regressive than the sales tax and thus an inherently fairer tax instrument. However, if a state personal income tax is roughly proportional and one adopts a lifetime perspective on tax incidence, the distributional differences between the two taxes are modest.²³ Nevertheless, an

²³ For example, Casperson and Metcalf (1994) analyze a national VAT on the assumption that it is fully shifted forward to consumers. They find that although a broad-based VAT is quite regressive with respect to annual income, it is roughly proportional with respect to annual consumption and only mildly regressive with respect to their estimates of lifetime income. They also analyze a VAT with zero ratings for food, housing, and health expenditures. In this case, the VAT is less regressive (than a comprehensive VAT) with respect to annual income, roughly

income tax would impose a greater tax burden than the sales tax on the very rich, which is arguably desirable on vertical equity grounds, and would reduce the overall regressivity of the Texas state tax system with respect to annual income. Perhaps more important, a state income tax would be effective at exempting the very poor from tax, while exemptions under the sales tax are both very costly in revenue terms and much less successful in reducing tax burdens on the very poor. Note, however, that the income tax has two relatively less important equity disadvantages relative to the sales tax, as the latter is more effective in taxing the elderly who are wealthy but have relatively little current taxable income, and in taxing tourists and business travelers, who receive some benefits of public services and thus should pay at least some tax.

As long as a state personal income tax were closely tied to the federal individual income tax, it would be a relatively simple tax to administer (even though the federal tax can be quite complex). In particular, if state income tax liability were simply roughly proportional to federal taxable income, then the tax would be quite simple in terms of both compliance and administration (where joint federal-state audits would be a possibility).

A state income tax should be roughly similar to the existing sales tax in terms of revenue stability over the business cycle. At first glance, one might expect that the sales tax, as a tax primarily on consumption, would be significantly more stable than the income tax, which includes a relatively unstable capital income component. However, the base of the sales tax in Texas does not include many necessities and thus foregoes the benefit of taxing a highly stable component of the tax base. In addition, nearly half of the sales tax base consists of purchases of business inputs, which are highly cyclical. Thus, much of the inherent stability of a tax on consumption is lost under the current state sales tax.

A state income tax should, however, be more stable than the sales tax with respect to economic growth, as it avoids the central problem with the sales tax — the sales tax base largely misses the relatively rapidly growing service and government sectors. Moreover, as long as the income tax

proportional with respect to their estimates of lifetime income, and moderately progressive with respect to annual consumption. See also Metcalf (1994) and Fullerton and Rogers (1991, 1993).

were roughly proportional with respect to income, the “automatic” or unlegislated increases in revenues attributable to a progressive tax system would not be an issue.

The revenue raised by a personal income tax would depend on the specifics of the plan enactments. The simplest approach would be to apply a flat rate to the federal definition of taxable income, including all the deductions and exemptions allowed under federal law, without any state-specific modifications. The State Comptroller estimates that such a personal income tax would raise \$3.0 billion per percentage point of tax, implying that a tax rate of 2.75 percent would raise annual revenues of \$8.1 billion.

Introducing Statewide Taxation of Nonresidential Property

Another approach to obtaining additional revenues to increase state-level financing of K-12 education expenditures would be the introduction of some form of statewide property taxation (a reform that would require an amendment to the Texas Constitution). A wide variety of options might be considered. The following discussion will focus on the option most often discussed in Texas — statewide taxation of nonresidential property. In addition, for reasons that will be presented below, the analysis will also assume that nonresidential property would be taxed at a single statewide rate.

The efficiency argument for such a reform is a “backhanded” one. In general, for the reasons discussed above, non-benefit property taxation of nonresidential property is undesirable because it is a source-based tax on mobile capital. This is especially true for property taxes in Texas, which apply not only to structures, land and equipment, but also to commercial and industrial personal property. Since commercial and industrial personal property is highly mobile, the arguments against source-based taxation of mobile capital are particularly relevant for this form of capital. Accordingly, consideration should be given to removing commercial and industrial personal property from the tax base regardless of what reform measures are adopted.

Nevertheless, if one assumes for political or other reasons that such a tax is to be imposed, state-level taxation of nonresidential property at a uniform rate does have important efficiency advantages over local taxation. In particular, the former approach would at least avoid distortions

of business location decisions within the state, as well as the tendency for local officials to under-spend on local public services financed in part with taxes on nonresidential property that is highly mobile (at least in the long run). In addition, statewide taxation of nonresidential property would eliminate the tendency for local jurisdictions with large amounts of nonresidential property perceived to be immobile to overspend on public services, given that residents face a significantly reduced effective price for such services. Moreover, if revenue constraints permit, the effective state-level tax rate on nonresidential property could be lower than the current average rate, reducing the overall extent of non-benefit taxation of mobile capital. Finally, note that efficiency requires that local governments should still be free to assess some form of benefit taxes on local businesses. These could be assessed directly, but some mechanism for local taxation of nonresidential property related as closely as possible to benefits of public services received and environmental costs imposed would also be highly desirable. Alternatively, the state could rebate some of the funds collected from state-level taxation of nonresidential property, preferably in a form tied to the levels of local public services provided to business (and perhaps environmental costs).

The primary equity rationale for statewide taxation of nonresidential property would of course be to remove one of the main causes of differences in potential tax bases across local school districts (although differences in residential property wealth would still remain). From a tax perspective, the average distributional effects of moving from the current system of local taxation to state level taxation of nonresidential property should be relatively small. However, this average tendency could mask potentially significant redistributions among property owners, from those in jurisdictions with current rates lower than the new state rate to those in jurisdictions with relatively high current rates. Note in particular that these effects would be magnified as the effects of expected change in future property tax liabilities were capitalized into current property values. On the other hand, some such redistribution is already occurring under the existing Robin Hood system, so that the changes would not be as great as they would be if the initial equilibrium were characterized purely by local property finance. In addition, any reduction in property taxation associated with greater state level K-12 education finance would also have important positive effects on property values overall and differential effects across tax jurisdictions (as described above). Thus, if a statewide property tax is ever to be adopted,

transitional equity issues would be relatively smaller if such a reform were accompanied by the school finance reforms currently under consideration. The magnitude of all of these effects could be gauged only with an explicit general equilibrium analysis of a specific reform proposal, taking into account the redistribution of funds and any remaining local taxation of nonresidential property, as well as the capitalization of changes in property taxation on the values of both nonresidential and residential property. The social costs of effecting these redistributions would have to be weighed against both the efficiency gains obtained from reform as well as any equity gains that would be obtained from the associated redistribution of school expenditures. These gains would depend greatly on the specific formula used to distribute education funds.

Moving from local to state level taxation of nonresidential property would have fairly limited effects on administrative and compliance costs and revenue stability. Such a substitution would have no net revenue effects if the state tax rate were the current average effective tax rate, although the state “share” of school finance would obviously increase. Nonresidential property currently accounts for slightly less than 60 percent of the total property tax base.

Finally, it should be noted that a move to statewide taxation of nonresidential property could also be accompanied by a structural change in the property tax such that the land component was taxed at a higher rate than the structures or capital component. Such a reform, which would move the state tax system toward increasing reliance on land value taxation, has long been advocated by some economists on both efficiency and equity grounds (Reschovsky 1998; Netzer 1998). In terms of economic efficiency, the basic rationale for a tax on land values is that the tax is relatively non-distortionary, since the supply of land within the taxing jurisdiction is fixed. Thus, increasing the tax rate applied to land while reducing the tax rate applied to capital, which is highly mobile in the long run, will improve efficiency (Nechyba 1998; Oates and Schwab 1997). On equity grounds, proponents of land value taxes argue that they approximate a benefit tax, as a significant fraction of increases in land values are attributable to the provision of government services. In addition, since land ownership is relatively concentrated among the wealthy, a land value tax is relatively progressive. Moreover, if a land value tax were implemented as part of reform that reduced property taxation of capital, then capitalization effects would be relatively small, as the effects of the land value tax increase would be at least

partially offset by the effects of the reduction in capital taxation. Since a differentially high tax on land value would also be a relatively stable source of revenue (Reschovsky 1998), can arguably be administered reasonably well (provided that land value is assessed accurately), and is deductible, it would deserve serious consideration as an element of any move toward statewide taxation of nonresidential property.

Introducing a Value-Added Tax or “Simplified Alternative Tax”

The final revenue option to be considered is some form of state value-added tax (VAT). National VATs have often been proposed but never adopted in the U.S., although the VAT is currently used as a major revenue source by some 120 countries around the world. In the U.S., Michigan and New Hampshire utilize variants of a VAT at the state level.²⁴

There are many alternative structures for a VAT (Gillis, Mieszkowski, and Zodrow 1996). This discussion will focus on consumption-based VATs that allow full expensing of all purchases of capital equipment and inventories (rather than the depreciation and inventory accounting required under an income tax), but no deductions for labor costs or interest expense.²⁵ Such a consumption-based VAT is thus quite similar in its economic effects to a retail sales tax, except that revenues are collected at various stages of the production process rather entirely at the retail stage, and there is an automatic and effective mechanism for ensuring that business inputs are not taxed. Although most national VATs are destination-based taxes (tax is assessed in the jurisdiction of consumption, implying that exports are untaxed while imports are subject to tax), most discussions of state VATs assume an origin basis (tax is assessed in the jurisdiction of production, with exports taxed but imports exempt). Accordingly, the following discussion will focus on consumption-based, origin-based versions of the VAT. The flat rate “business activity

²⁴ The Michigan VAT, known as the Single Business Tax, is currently scheduled to be phased out.

²⁵ An alternative is an income-based VAT, under which expensing of capital purchases is replaced with deductions for depreciation, as under a standard income tax. The “Single Business Tax” utilized in Michigan is an origin-based, consumption-based VAT (Cline 1988). The New Hampshire Business Enterprise Tax is a modified version of an origin-based, income-based VATs that does not include rents, retained earnings, or the labor earnings of sole proprietors or partners in a partnership (Kenyon 1996).

tax” or “Flat BAT” proposed by the Texas-based Lone Star Foundation (Hartman 2003) is a consumption-based origin-based VAT.

In addition, the discussion will consider briefly a tax system that has been described as a “Simplified Alternative Tax” or SAT (Zodrow 1999; Zodrow and McLure 1991), which is a variant of the Bradford (1986) X-Tax, which is in turn a multi-rate variant of the Flat Tax proposal constructed by Hall and Rabushka (1985, 1995). This approach provides for a tax that is similar to an origin-based, consumption-based VAT at the business level, except that firms get a deduction for labor compensation, which is then taxed at the individual level, subject to a standard deduction and personal exemptions.²⁶ All forms of business, perhaps subject to a low exemption, are subject to tax. The rate structure at the individual level can be moderately progressive, with a top rate equal to the business rate. All forms of capital income, including dividends, interest and capital gains, are not taxed at the individual level.²⁷

The following discussion evaluates these two VAT derivatives.²⁸ Common elements are considered first, and then differences among the two alternative tax options. On efficiency grounds, the VAT has the important advantage of avoiding the problems associated with gross receipts taxes—especially haphazard, cascading, and distortionary taxation of business inputs—and can also be applied to all business sectors, including services (to the extent

²⁶ Pensions would be treated as under current law—deductible to the firm, with earnings tax exempt but all pension payments to individuals fully taxable.

²⁷ The following discussion of the state SAT option is fairly cursory; for further details, see Zodrow (1999).

²⁸ A payroll tax is another tax reform option. Since the economic effects of a payroll tax are similar to the labor compensation component of a VAT (in particular, the individual component of a flat-rate SAT), the analysis will not also discuss the payroll tax option. It should be noted, however, that a payroll tax could be imposed on the financial services sector (where imposition of a VAT is administratively difficult) and on the nonprofit and government sectors (where imposition of a VAT is politically difficult). Uniform taxation of all sectors is desirable on both efficiency and equity grounds, and such a broad base is desirable—as will be discussed in more detail below—to keep the VAT rate relatively low. Indeed, one extremely attractive “hybrid” reform option is a VAT applied to all nonfinancial private businesses, coupled with a payroll tax applied to financial institutions, nonprofit organizations, and state and local governments – a combined business activities and payroll tax that Diamond and Zodrow (2005) refer to as a BAPT. Finally, note also that a VAT differs from a payroll tax in that only the former taxes the income to old capital (depending on transition rules) as well as above-normal returns to new capital.

administratively feasible). In addition, consumption-based VATs avoid source-based taxation of mobile capital, and are thus especially well-suited tax instruments for a small open economy; they also avoid worsening the various distortions of the federal corporate income tax. VATs do not tax capital income at the individual level, and thus avoid exacerbating the bias against saving that occurs under the existing federal personal income tax. However, any VAT would distort the labor supply decisions of Texas residents and would encourage out-migration of labor, particularly high-skilled labor, to some extent.²⁹ Note that the SAT is more visible than a standard VAT, since most of its tax burden would be assessed at the individual level; the SAT would thus be more conducive to efficient political decision-making, with the standard VAT similar to the sales tax in terms of this criterion.³⁰

On equity grounds, the incidence of a consumption-based VAT would be roughly similar to that of a sales tax or a payroll tax.³¹ (Thus, from a lifetime incidence perspective, there is relatively little difference between these taxes.) A major advantage of the SAT is that is structured so that poor families can easily be exempted from tax and a modest degree of progressivity can easily be achieved if deemed desirable. However, distributional concerns about the effects of a VAT could, as under the sales tax, be addressed with a tax rebate program tied to an expanded version

²⁹ Note that as an origin-based tax, a state VAT is more like a tax on in-state production than a true consumption tax (McLure 1987). Accordingly, especially for tradable goods, its burden would more likely be reflected as lower factor returns (lower wages, economic rents, and returns to old capital) than as higher prices. Note also that to any extent that a VAT were not either shifted forward as higher prices or backward as lower wages (as seems likely), it would create a tax bias against hiring labor.

³⁰ The VAT is often described as more “hidden” than the sales tax, and thus more likely to lead to inefficient expansion of the public sector. In the case of the standard “credit-invoice” method VAT, this is not the case as long as retailers are required to show the VAT separately on all invoices, calculated at the standard rate (or whatever rate applies to the commodity in the case of differential rates). Although a similar approach might be attempted under the “subtraction-method” origin-based VATs described above, it would be more tenuous since the appropriate rate would be difficult to determine for goods produced with inputs that are imported or produced by exempt firms. For further discussion, see Zodrow 1999a.

³¹ Note that although an origin-based VAT would apply to exports, the extent to which a VAT imposed by Texas could be shifted to residents of other states would be limited by the “small open economy” considerations noted previously. Thus, the VAT on tradable goods would be likely to be borne by in-state labor (Papke 2000).

of the Lone Star Card.³² The primary equity problem with the SAT is that the explicit exemption of ordinary returns to capital from the individual tax base is often perceived to be inequitable, given the long history of income taxation in the U.S.; however, the importance of this point may be muted in Texas, given the historical opposition to income taxation in the state. Finally, a VAT could be justified as a proxy for a benefit-related tax on businesses, assuming that business demand for public services is roughly proportional to the value-added attributable to production in the state. Of course, some businesses will always object to paying tax when they are not profitable (as can easily occur under a state VAT); indeed, this complaint was apparently the major factor in the recent (phased-in) downfall of the Michigan VAT, the “single business tax.” However, it is important to note that under the benefit tax interpretation of the VAT, it is to be expected that firms in a loss position will still pay tax; that is, the payment of benefit taxes is not contingent upon profitability, any more than payments to other factors of production. Moreover, payment of tax by unprofitable firms might not be a particularly troublesome issue in Texas, where most businesses are accustomed to paying the net asset component of the franchise tax even in years in which they are not profitable.

In general, the VAT options are relatively simple taxes, especially when compared to an income tax. However, since they would be new tax instruments in Texas (rather than taxes that can “piggyback” on existing federal taxes), they would add a new layer of complexity to administration and compliance for businesses (and for individuals under the SAT); of course, there is much VAT experience around the world on which Texas tax administrators could draw, and all of the information required for the VAT should be readily available since it is already required for federal income tax accounting.

A serious issue under the VAT options would be the treatment of multi-state firms. Since exports are included in the tax base and imported inputs are deductible (under the origin-based approach utilized), the system is subject to transfer pricing problems if tax liability is calculated on a

³² Alternatively, firms could be allowed a deduction from the VAT base for some amount, such as the minimum wage, for each employee.

separate entity basis (Bradford 2003). For this reason, separate accounting is not desirable under a state VAT. In addition, since the treatment of interest income and expense differs from that under an income tax, potentially significant opportunities for tax avoidance and evasion are created that would be difficult to monitor and control (McLure and Zodrow 1996). Of course, one potential solution to the transfer pricing problem and some of the avoidance problems would be to use formula apportionment to allocate VAT (or SAT) revenues as under the current franchise tax. The use of a single gross receipts factor would be consistent with current practice under the franchise tax. However, this would effectively convert the VAT to a levy assessed on gross receipts for such firms, negating much of its efficiency advantages; although, in contrast to formulas that use property or payroll taxes, using a single factor (sales) formula would have the advantage of avoiding the imposition of what would effectively be a source-based tax on mobile capital and mobile high-skilled labor. Another approach, consistent with the notion of an origin-based, consumption-based tax, would be to use payroll (or total labor compensation) as the apportionment factor; the rationale for this approach is that a consumption-based tax like the VAT can be viewed primarily as a tax on labor since ordinary returns to capital are exempt from tax. Alternatively, both labor compensation and capital (or property) could be used in the apportionment formula, on the grounds that the VAT does include in its tax base above-normal returns to capital and, for a lengthy transition period, returns to old capital.³³ Finally, as noted above, a separate issue is that financial institutions are not easily taxed under either of the VAT options, and a separate tax on such institutions might be required (Zodrow 1999).³⁴

To the extent that the VAT options were successful in taxing a comprehensive measure of consumption, they should be relatively stable. Note that the individual tax base of the SAT,

³³ In addition, it should be noted that the use of formula apportionment creates its own efficiency problems (McLure 1980; Gordon and Wilson 1986).

³⁴ In addition, the enactment of transition rules for any of the VAT options would have to be considered, although the need for such transitional issues would be minimized to the extent that base of the VAT were extremely broad so that the rate would be low, especially if the VAT were replacing a higher-rate franchise tax (Zodrow 2002).

which excludes capital income, would be more stable than the base of a personal income tax which includes relatively volatile capital income components, especially capital gains.³⁵

Revenue estimates are available only for the consumption-based VAT. Significant revenues could be obtained with a comprehensive state VAT with a minimal exemption level on the order of \$25,000 of gross receipts; this would be especially true if non-profit institutions were included in the tax base, presumably subject to a large exemption level, say, on the order of \$100,000 of gross receipts.³⁶ Note that although application of the VAT to large non-profit institutions would be difficult from a political standpoint, it would be entirely appropriate in the context of a sweeping reform that would attempt to apply the tax system more evenly across all entities providing consumer goods and services. Since tax exempt institutions already benefit from property tax exemption and exemption from sales tax on their output as well as on most of their inputs, it would not be unreasonable for such institutions to pay a low-rate VAT to promote education and economic growth within the state. This is especially true since the VAT can be viewed to a large extent as a tax on labor compensation, and there is no particular reason to effectively exempt from tax individuals who happen to work for tax-exempt institutions. In addition, as noted previously, the VAT discourages labor supply and this distortion can be minimized by keeping the base as broad and the rate as low as possible.

The enactment of a state VAT would presumably be politically viable only if it were accompanied by repeal of the existing franchise tax, which would raise state level revenue required to \$10 billion. This could be raised with a truly comprehensive VAT at a rate of approximately 1.6 percent.³⁷ If non-profit institutions were excluded from the tax base, the

³⁵ Taylor (2003) notes that revenues of states that utilize the income tax revenues have been highly unstable in recent years during the recent boom-and-bust cycle of the U.S. stock market.

³⁶ Taxing government institutions would also increase the size of the base, but is probably politically infeasible.

³⁷ As noted previously, state VATs are typically referred to as “business activity taxes” (BATs) in the U.S., and proponents of the VAT in Texas are no exception (Hartman 2003). Note, however, that non-profit institutions might

required rate would increase to 2.0 percent. More important, however, exempting non-profits would open the door to demands for exemption from countless other “worthy” entities, increasing the likelihood that a broad-based, low-rate VAT would be politically unattainable.

V. Conclusion

This paper has provided an economic evaluation of various alternative sources of additional revenues for the State of Texas that might be used to finance a greater state share of K-12 education spending and perhaps an increase in the overall level of education spending. The evaluation utilized the three primary criteria typically used by public finance economists to evaluate alternative tax systems—efficiency, equity, and simplicity—as well as the supplementary criteria of revenue stability, both with respect to economic growth and over the business cycle. Although the primary purpose of the study is to provide tax policymakers with an analysis of the relative advantages and disadvantages of the various reform options rather than making definitive recommendations, some concluding observations may be in order.

In particular, the analysis suggests the following four general directions for reform of the Texas state tax system: (1) To the maximum extent possible, additional revenue should be raised with expanded use of benefit taxes, including those assessed on businesses. Benefit taxes have the considerable advantage of improving the efficiency of resource allocation while simultaneously raising revenue; (2) Mobility considerations, coupled with historical opposition in Texas to progressive taxes, suggest that any progressivity of the state tax system should be limited to adjustment for the fact that deductibility is worth more to high-income individuals. In addition, longstanding practice in Texas suggests that the tax system should be designed to minimize the tax burden on very low-income individuals; (3) The fact that Texas businesses must compete in a national and global economy implies that non-benefit related taxation of businesses should generally be minimized. In particular, to the extent that capital is perfectly mobile, source-based taxation of business income is largely counterproductive for the residents of the state, who

object to paying the BAT on the grounds that they are not “businesses.” This issue could be avoided by following the Canadian example and referring to the tax as the “Texas Goods and Services Tax.”

ultimately bear both the direct tax burden and the efficiency costs associated with taxing mobile capital; (4) Texas should avoid taxes on gross receipts and taxes that have economic effects similar to those of gross receipts taxes. The tax cascading caused by such taxes distorts business decisions regarding inputs and vertical integration, consumer decisions regarding consumption choices, impairs the efficiency of the political process by financing public services with a “hidden” tax, and creates a tax bias against small firms.

Given these general directions for reform, the analysis turned to an examination of various alternative sources of tax revenue for the state. Three types of reforms were considered: incremental reforms of the existing system, more fundamental reforms of the existing tax system, and the introduction of new taxes.

Consider first potential reforms that involve relatively moderate changes of the existing sales tax, franchise tax and lottery. The analysis draws the following conclusions: (1) Broadening the sales tax base to include a wider variety of consumer goods and services is generally desirable. Concerns about the distributional effects of reducing or eliminating sales tax exemptions and goods consumed disproportionately by the poor could be addressed by introducing a highly targeted means-tested sales tax rebate, perhaps involving expanded use of the Lone Star Card program; (2) However, the case for expanding the base of the sales tax to include a wider variety of business services is much weaker. Such an expansion would increase the extent to which the sales tax functions as an undesirable gross receipts tax, and would introduce significant administrative problems; (3) Some revenues could be raised by increasing excise tax rates to levels comparable to those in states that are fairly aggressive in using these tax instruments. The primary problem with this approach is that it is regressive, at least for some taxes, even if one adopts the lifetime view of tax incidence used in the report; (4) The “small open economy” argument utilized in the paper implies that the franchise tax is one of the most inefficient taxes utilized by the state. Thus, reduction or elimination of the state franchise tax on Texas businesses would be desirable. However, if this is unattainable, the tax should be applied to all forms of business, subject to a small firm exemption, and serious consideration should be given to various measures to reduce opportunities for tax avoidance, including changing nexus rules and imposing consolidation requirements; (5) Expansion of the existing lottery by adding video

lottery terminals could provide some additional revenues, without increasing the already relatively high level of taxation of existing lottery games. Since the incidence of the lottery tax is quite regressive, its expansion should arguably be accompanied by other tax changes that offset its regressive impact.

Texas may also wish to consider more fundamental reform of its existing tax system, especially the current sales tax. For example, fundamental reform of the sales tax system would include all of the sales tax reforms described above, coupled with a concerted effort to eliminate business inputs from the sales tax base. Such an approach would insure that Texas would receive the economic benefits of a true tax on consumption, uniformly applied to all consumption goods and services to the extent politically and administratively feasible. The franchise tax would best be replaced by an alternative more neutral, and more comprehensive business tax based on value added that would minimize source-based income taxation of highly mobile capital.

Finally, additional revenues could be raised with entirely new forms of state-level taxation. There are three obvious options: a personal income tax, statewide taxation of nonresidential property, and some form of value-added taxation. Although most Texans abhor a personal state income tax, such a reform has the advantage of simplicity (at the state level). Although an income tax exacerbates the distortion of saving decisions associated with the federal income tax and creates a tax incentive for high-income taxpayers to leave the state, it would avoid the differential taxation of business inputs that characterizes the current system and result in fewer distortions of consumption decisions. An income tax would also be more progressive than the sales tax (at least with respect to annual income), and the tax provides a simple way of exempting the poor from tax.

Statewide taxation of nonresidential property would also be a dramatic reform. Although non-benefit property taxation of nonresidential property is generally undesirable, a state level tax would at least be somewhat less inefficient than the local tax. The distributional effects of such a reform would be small on average, but could potentially involve significant redistributions of wealth across Texas jurisdictions that would be difficult to predict.

Finally, a strong case can be made for a consumption-based VAT that has desirable efficiency properties, is relatively simple, and avoids source-based taxation of mobile capital and thus spurs investment. Consideration could also be given to the Simplified Alternative Tax version of the VAT, which allows businesses a deduction for wages and then taxes wage income at the individual level, subject to a standard deduction and personal exemptions to exempt the poor from tax. However, all of these VAT options would add a new layer of complexity to administration and compliance, and would introduce a variety of new problems not shared by the existing tax system.

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