

# FISCAL RESEARCH CENTER

## SUBNATIONAL VALUE-ADDED TAXES: OPTIONS FOR GEORGIA

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## **Executive Summary**

### **Introduction**

First levied at the national level in 1948 in France, value-added taxes (VAT) have spread rapidly throughout the world. Now, over 120 countries use VATs to raise significant amounts of revenue. A noticeable exception to the use of the value-added tax is the United States. From time to time the suggestion arises about implementing a value-added tax at the Federal level in the United States, either as a replacement for the existing corporate income tax or as an additional business tax.

A recent tax reform proposal has been introduced in the Georgia Assembly. The original version of House Resolution (HR) 900 contained several significant changes to the tax system in Georgia.<sup>A</sup> These changes included the elimination of the state sales tax, the elimination of the property tax and the transformation of the corporate income tax into a business value-added tax among other changes. While the specifics of HR 900 have since changed, the premise is still relevant. The purpose of this research is to explore the impact of replacing the state sales and corporate income tax with a value-added tax.

### **Understanding the Value-Added Tax (VAT)**

A value-added tax is a tax levied on the value-added in production through the various stages of the production process. Value-added is the difference between the value of the goods or services sold and the value of goods or services purchased as intermediate inputs.<sup>B</sup> Unlike the retail sales tax which is a single-stage tax collected only at the point of sale to the ultimate consumer, the VAT is a multistage tax. However, both the retail sales tax and the VAT are indirect taxes on consumption in that they are collected from sellers of taxable goods and services. Both taxes can be either explicitly stated as part of the bill of sale or rolled into the price of the good. The burden of either tax may be borne by final consumers.

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<sup>A</sup> The original version of HB 900 has been revised and no longer contains a proposal for a business value-added tax.

<sup>B</sup> Metcalf, 1995.

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But, in cases where the consumption of the good is very sensitive to price, the burden of the tax may fall on the producer of the good or on labor.

There are three types of VATs depending on the treatment of capital purchases in the computation of the value added: consumption-type VAT, income-type VAT, and gross product-type VAT.<sup>C</sup> A comprehensive description of value-added taxes also depends on the method used to calculate the tax liability. There are three methods of taxing the value added to goods and services as they pass through each stage of the production process: the addition-method, the subtraction-method, and the credit-invoice method. With respect to the treatment of international or cross-border transactions involving goods and services, the VAT can be levied according to the “origin” or the “destination” basis. Under an origin-based system, taxes are levied according to the location of production. A destination tax levies the tax based on the location of consumption. Finally, under a VAT system, preferential tax treatments can be accomplished either through exemptions or through zero-rating.

### **The Michigan’s Single Business Tax (SBT)**

While the United States does not levy a national VAT, two states, Michigan and New Hampshire, have levied subnational VATs. In 1975, the State of Michigan enacted the Single Business Tax (SBT), a value-added type tax and at the time the only major VAT levied in the United States. The tax was so named because it largely replaced Michigan’s seven traditional types of business taxes.<sup>D</sup> The SBT is an addition-method and an origin-based value-added tax with a rate of 2.35 percent. In FY 2002, this tax accounted for 10 percent of state tax revenues.<sup>E</sup>

Under the SBT structure, unincorporated businesses (sole proprietorships, partnerships, and limited liability companies) and S corporations in Michigan were

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<sup>C</sup> Purchases of investment goods are not considered consumption because they are not immediately consumed when they are purchased. They contribute to the production of other consumption goods over their productive lifetime (Michigan Department of Treasury 2006; Bickley 2006; Rosen 1999).

<sup>D</sup> These taxes included the corporate income tax, the financial institutions income tax, the corporate franchise tax, the savings and loan association fee, the domestic insurance company privilege fee, the local government property tax on inventories, and the intangibles tax on business.

<sup>E</sup> Annual Report of the Michigan State Treasurer, Fiscal Year 2002-2003.

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required to pay both the personal income tax and the SBT. In order to alleviate the double taxation, an income tax credit was added to the provisions of the SBT. In 1999, in the wake of multiple tax reforms, legislation provided for a reduction of the SBT rate by 0.1 percent increments from its 1998 rate of 2.35 percent until its elimination by 2010.<sup>F</sup>

### **New Hampshire's Business Enterprise Tax**

The only other VAT currently levied in the United States is the New Hampshire Business Enterprise Tax (BET). While, it is also an origin-based VAT computed using the addition method, it is levied in conjunction with a traditional corporate income tax. Thus, unlike the Michigan SBT, the BET is not designed to be the sole form of state business taxation. The current rate at which the BET is levied is 0.75 percent on a base of total compensation, accrued or paid interest and dividends. In the case of businesses earning income in several states, the BET is apportioned on a pro-rata basis. In New Hampshire only those companies with gross receipts in excess of \$150,000 or with a BET tax base in excess of \$75,000 are required to file a BET return. The BET is levied on all businesses including corporate, LLCs, partnerships, sole proprietors, and nonprofits.<sup>G</sup>

### **A VAT Compared to a State Corporate Income Tax and a Retail Sales Tax**

A main difference between a value-added tax and a retail sales tax lies in the treatment of business inputs. With a value-added tax there is no tax imposed on business inputs, except in the case of exemptions where inadvertent and indirect taxing occurs. While not usually imposed on business inputs, it is very common for business inputs to be taxed under a retail sales tax. Another difference between a VAT and a retail sales tax centers on the activity creating the tax liability. A retail sales tax is a destination-based tax. It is paid by consumers based on where the goods

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<sup>F</sup> The legislation to eliminate the tax was later amended. The SBT is scheduled to be eliminated by 12/31/2007.

<sup>G</sup> New Hampshire does not distinguish between S corporations and C corporations.

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are sold. A value-added tax can be levied either as an origin or destination-based tax, i.e., at the point of production or consumption.

Both a corporate income tax and a VAT tax business income. The VAT is designed to tax the returns from the resources used to produce the business output, and the corporate income tax is levied on a base designed to represent profit or returns to the firm. Another significant difference exists between these two taxes. The corporate income tax adheres to the “ability to pay” rule in which those firms with greater income pay more in taxes. Alternatively, the VAT violates this rule because firms are taxed based on the sum of the value of their labor, interest and dividends paid, and retained earnings.

There are several standards against which a tax can be judged. Preferred tax systems introduce as few distortions into the economy as possible, provide reliable sources of revenue, adhere to some measure of fairness, are administratively feasible, have relatively low compliance costs, and contribute to economic development of the taxing jurisdiction. No tax is superior in all these categories. The final choice between tax systems depends on the weight given to each criterion by policymakers.

One of several yardsticks by which tax systems can be judged, a very simple measure of efficiency can be captured by measuring the size of the tax base. When comparing tax bases, the base of the VAT is estimated to be over 11 times larger than that of the traditional corporate income tax based on our analysis. Business taxable income, consisting of the combined bases of all business entities, is the more appropriate comparison to the VAT base since the VAT taxes income from all sources. Based on our estimates, the estimated VAT base for Georgia is 6 times larger than the business income tax base.

The equity standard of taxation is concerned with fairness and which groups of the economy bear the burden of the tax. In the case of the VAT, over 40 percent of the tax base comes from wages and fringe benefits. Compared to the state corporate income tax, this may be considered less equitable because under the state corporate income tax, firms receive a deduction for wages and fringe benefits paid to employees.

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The standard of stability means that more stable tax bases are preferred to less stable ones. A stable tax base allows for greater predictability in revenues which in turn allows for better long range planning by state policy officials. In addition to being predictable, state governments need revenue sources that keep pace with the growth in personal income and population. The VAT base is found to be the most stable of all the bases considered in this analysis, but only slightly more stable than the business income tax base. This is largely due to the presence of wages in the VAT base. Alternatively, the corporate and business income tax bases are made less stable by their greater reliance on the value of retained earnings which is found to vary widely from year to year. Of the three bases, our analysis indicates that the VAT base has an elasticity closest to 1 over the 1996-2000 time period. This indicates a revenue stream that more closely follows the change in personal income. Both the corporate and business income tax bases are computed to have higher elasticities. This indicates that in times of growth in the economy, these revenues will grow faster but that in times of economic slumps these revenues will fall by more than the general decline in the economy.

Finally, the VAT has often been associated with a tax that is favorable to exports and increases the competitiveness of business in that economy. The corporate income tax, on the other hand, is seen as a hindrance to economic development in a state.

### Summary

While a very popular form of taxation internationally, the value-added has been a common replacement for general sales or turnover taxes. It has not been a replacement for an income tax and in fact, is levied in several countries in conjunction with an income tax. In addition, the most common form of subnational VAT is the addition-based VAT, as levied in Michigan, New Hampshire, and Italy. Canada levies a subnational VAT of the credit-invoice type but this is made feasible by the presence of a national credit-invoice system.

The VAT has several qualities that make it an attractive tax system. For instance, a VAT does not typically tax business inputs as is often the case with a



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retail sales tax. It does not discriminate between forms of business organization as the corporate income tax does but instead, taxes all businesses under the same system.<sup>H</sup> This creates a broader and slightly more stable source of tax revenue than that compared to the business income tax base.

On the negative side, the VAT does not adhere to the “ability to pay” principle of taxation. Instead, the tax liability is based on the value of resources consumed to produce a firm’s output. While philosophically this may seem appropriate, in practice it means that businesses with zero profits or losses will have positive tax liabilities. In terms of the distribution of the tax burden, the VAT is expected to be borne by final consumers, labor, and, in some cases, producers.

In terms of administration, the tax on its own offers no significant improvement over a corporate income tax or a sales tax. The VAT, in any form, requires auditing. Operated in the addition form, the VAT is administered in much the same way as the corporate income tax and the tax base is just as susceptible to erosion from special preferences as the corporate income tax or sales tax. Compliance is probably more costly under the VAT when levied by only one state because it requires different record keeping.

As for economic development, the VAT, levied in an addition-based form, may not offer an advantage over the existing corporate income. Both systems require apportioning of multistate income. The addition-based VAT is an origin-based tax, meaning that domestic production sold in the state or exported from the state is taxed but imports to the state may not be taxed. This can have the effect of making some exports less competitive depending on the state in which they are sold. Therefore, the “race to the bottom” effect still permeates the tax system. Any gains in economic development from shifting to a VAT will ultimately depend on the specific administration of the tax and its treatment of capital relative to the existing tax system.

In the end, the choice between a state corporate income tax and an addition-based VAT comes down to a decision about the appropriate choice for the tax base, either resources consumed or profit earned. Choosing the VAT simply as a

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<sup>H</sup> Though due to activity-level thresholds, many smaller businesses may not be taxed.

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replacement for a general sales tax can offer large rewards in terms of reducing the taxation of business inputs but this effect can also be approximated through exemptions of sales of raw materials from the sales tax base. On the other hand, moving to an addition-based VAT may offer no additional advantage for businesses over the existing corporate income tax, and in fact, will cause many businesses to incur a positive tax liability when they have economic losses or no positive profits. Any tax reform creates new winners and losers. Determining *a priori* the overall gains to the economy is difficult and will depend on the specifics of the tax reform proposal.

### I. Introduction

First levied at the national level in 1948 in France, value-added taxes (VAT) have spread rapidly throughout the world. Now, over 120 countries use VATs to raise significant amounts of revenue.<sup>1</sup> A noticeable exception to the use of the value-added tax is the United States. From time to time, the suggestion arises about implementing a value-added tax at the Federal level in the United States, either as a replacement for the existing corporate income tax or as an additional source of revenue.

A recent tax reform proposal has been introduced in the Georgia Assembly. The original version of House Resolution (HR) 900 contained several significant changes to the tax system in Georgia.<sup>2</sup> These changes included the elimination of the state sales tax, the elimination of the property tax and the transformation of the corporate income tax into a business value-added tax among other changes. While the specifics of HR 900 have since changed, the premise is still relevant. The purpose of this research is to explore the impact of replacing the state sales and corporate income tax with a value-added tax.

As a national tax, VATs have been popular throughout all parts of the world. The only major economies not to have a VAT are the United States and India<sup>3</sup>. Most of the adopting countries implemented a value-added tax as a replacement for a form of turnover or general sales tax<sup>4</sup>. A general sales tax, while simple in administration and compliance, increases the tax base by levying taxes on all sales of a business, including sales between businesses. When business inputs are taxed in the chain of the manufacturing process, the tax levied at one stage is incorporated into the tax base at the next stage. This creates a system of cascading or tax pyramiding. The value-added tax, as is shown later in this research, eliminates the problem of cascading and is seen as a superior tax to the general sales tax. The question that remains to be explored is whether the value-added tax is a superior tax to the corporate income tax.

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<sup>1</sup> Ebrill et al., 2001.

<sup>2</sup> The original version of HB 900 has been revised and no longer contains a proposal for a business value-added tax.

<sup>3</sup> India has a subnational VAT but no national VAT.

<sup>4</sup> A general sales tax differs from a retail sales tax by including all transactions in the base. A retail sales tax taxes only sales to final consumers.

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Subnational VATs are much less common than national VATs. Internationally, India, Canada, Italy, and Brazil have subnational VATs. There are two examples of subnational VATs in the United States. Michigan implemented the Single Business Tax (SBT) for a time but is in the final months of eliminating the tax. New Hampshire levies the Business Enterprise Tax (BET) tax which operates in conjunction with the state corporate income tax. Both of these examples are discussed in greater detail later in the paper. The paper proceeds with a primer on the value-added tax, followed by a discussion of the Michigan SBT and the New Hampshire BET. The last half of the paper compares the state corporate income tax, the state retail sales tax, and the value-added tax on the basis of revenue stability, administration and compliance, efficiency, equity, and economic development. The conclusion summarizes the findings of these comparisons.

## II. Understanding the Value-Added Tax (VAT)

A value-added tax is a tax levied on value-added in production through the various stages of the production process. Value-added is the difference between the value of the goods or services sold and the value of goods or services purchased as intermediate inputs.<sup>5</sup> Unlike the retail sales tax which is a single-stage tax collected only at the point of sale to the ultimate consumer, the VAT is a multistage tax. The VAT can be considered a retail sales tax that is collected in increments throughout the production process. However, both the retail sales tax and the VAT are indirect taxes on consumption in that they are collected from sellers of taxable goods and services. Both taxes can be either explicitly stated as part of the bill of sale or rolled into the price of the good. The burden of either tax may be borne by final consumers. But, in cases where the consumption of the good is very sensitive to price, the burden of the tax may fall on the producer of the good or on labor.

The following simple example provides an easy way to understand how the VAT is implemented. Consider a model of bread production: a farmer grows wheat and sells it to a miller who turns grain into flour. The miller sells the flour to the baker who transforms the flour into bread. A grocer purchases the bread and sells it to consumers. A numerical example of the process is given in Example 1.

### **EXAMPLE 1. IMPLEMENTATION OF A VALUE-ADDED TAX (VAT)**

<b>Producer</b>	<b>Purchases</b>	<b>Sales</b>	<b>Value Added</b>	<b>VAT at 10 Percent Rate</b>
Farmer	\$0	\$400	\$400	\$40
Miller	\$400	\$700	\$300	\$30
Baker	\$700	\$950	\$250	\$25
Grocer	<u>\$950</u>	<u>\$1,000</u>	<u>\$50</u>	<u>\$5</u>
<b>Total</b>	<b>\$2,050</b>	<b>\$3,050</b>	<b>\$1,000</b>	<b>\$100</b>

Source: Rosen, 1999.

The second column shows the purchases made by the producer at each stage of production, and the third column shows the value of sales at each stage. The value added at each stage of production is computed by subtracting purchases from sales.<sup>6</sup>

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<sup>5</sup> Metcalf, 1995.

<sup>6</sup> This is the Subtraction Method; see remainder of the section for more details.

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For example, the baker paid \$700 for the flour and sold the bread for \$950, so his value-added is \$250. Assuming a value-added tax of 10 percent, the baker pays \$70 on the initial purchase of materials from the miller. Upon sale of the bread to the grocer, the baker collects \$95 in VAT. The net VAT liability of the baker is \$25 (\$95-\$70). The total revenue created by the VAT is found by summing the amounts of VAT liability at each stage of production (last column), and is equal to \$100 in this example. Note that in a system in which there are no special tax rates for any goods or services and no exemptions, an equal amount of revenue could be generated by levying a 10 percent sales tax at the retail level, i.e. a 10 percent tax on the value of sales made to consumers by the grocer.

### A. Types of VATs

There are three types of VATs depending on the treatment of capital purchases in the computation of the value-added: consumption-type VAT, income-type VAT, and gross product-type VAT.<sup>7</sup> In the consumption-type VAT, capital purchases are removed completely from the tax base. The purchase of an investment good is treated like any other material input. Its full value is subtracted from sales in the computation, i.e. it is expensed. Most developed and developing countries' VATs are of the consumption type. This type is the most favorable to investment expenditures. In the income-type VAT, firms are allowed to deduct the cost of their inputs and the amount by which investment goods depreciate. This is essentially the same treatment allowed under a corporate income tax. With the gross product-type VAT, firms are allowed to deduct the cost of their inputs but are allowed no deductions for investment or depreciation; a treatment less generous than the corporate income tax.

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<sup>7</sup> Purchases of investment goods are not considered consumption because they are not immediately consumed when they are purchased. They contribute to the production of other consumption goods over their productive lifetime (Michigan Department of Treasury 2006; Bickley 2006; Rosen 1999).

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### B. Methods of Imposing a VAT

A comprehensive description of value-added taxes also depends on the method used in calculating the tax liability. In particular, we discuss the methods of computing the value added to goods and services as they pass through each stage of the production process: the addition, subtraction, and credit-invoice method.<sup>8</sup> The methods all produce tax bases of equivalent value but are computed in different manners. Each base and each method of calculation are shown in Table 1.

**TABLE 1. COMPARISON OF VALUE-ADDED TAX LIABILITIES**

Type of Base	Method of Computation		
	Credit-Invoice	Subtraction	Addition
Gross-product	(Gross Receipts)*t – credit for tax paid on inputs	(Gross Receipts – cost of raw materials)*t	(Wages + Rent + Interest + Profits)*t
Income	(Gross Receipts – depreciation)*t – credits for tax paid on inputs	(Gross Receipts – cost of raw materials – depreciation)*t	(Wages + Interest + Rent + Profits – Depreciation)*t
Consumption	(Gross Receipts – cost of capital expenditures)*t – credits for tax paid on inputs	(Gross Receipts – cost of raw materials – capital expenditures)*t	(Wages + Interest + Rent + Profits – Capital Expenditures)*t

Notes: where “t” equals the VAT tax rate; where profits equals retained earnings + dividends paid + depreciation.

Under the addition method, a firm’s VAT base for each tax period is the sum of its economic factors of production for the period (profit, labor costs, depreciation, and interest paid). The firm’s tax liability is then calculated by multiplying the tax base by the tax rate. The subtraction method computes the VAT base by subtracting the firm’s purchases of intermediate inputs from its gross sales. The tax liability is equal to the VAT base multiplied by the tax rate. The credit-invoice VAT is the most prevalent method used to calculate VAT worldwide. In this system, the VAT is levied on the total value of sales at each stage of production, but a credit is allowed for any VAT paid on inputs used in production at previous stages. In order to claim

<sup>8</sup> For additional references on these alternatives see: the Michigan Department of Treasury, 2006; Bickley, 2006; Schenk and Oldman, 2006; Metcalf, 1995; and GAO, 1989.

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the credit, a firm is required to show proof (generally in the form of an invoice) that the VAT has been paid. The credit-invoice method provides an incentive for the producers to police themselves against tax evasion. Considering that whatever tax liabilities are evaded by the supplier must be paid by the purchaser of the inputs, the purchaser has an incentive to do business only with other firms that properly comply with the tax system.

### **C. Treatment of Imports and Exports under a VAT**

With respect to the treatment of international or cross-border transactions involving goods and services, the VAT can be levied according to the “origin” or the “destination” basis. An origin-based VAT taxes value-added in the country or state in which the value-added is produced. A destination-based VAT taxes value-added in the country or state in which the value-added is consumed.

A large number of countries rely on the destination principle to determine the base of the VAT with regards to international transactions of goods and services. It incorporates a border tax adjustment in which exports are excluded from the tax base and imports are taxed. As a result, the full value of goods and services consumed within a taxing jurisdiction are taxed at the same rate, whether the value-added of those goods and services is produced domestically or imported. On the other hand, under an origin-based VAT, all domestic production is subject to the tax regardless of where it is consumed and imports are excluded from the tax base.

### **D. Exemptions/Zero-Rating**

Under a credit-invoice or subtraction-based VAT, certain stages of the production process or certain groups can be singled out for preferential tax treatment, just as with other tax systems. This can be accomplished in two ways under a value-added tax system, either through exemptions or zero-rating.<sup>9</sup> If an item is exempted from the value-added system, then no tax is levied on that stage of production but neither is a credit given for any previous tax paid on the inputs. Since the producer of

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<sup>9</sup> Zero-rating of exports is not possible under an addition-based VAT since the VAT is calculated on an accounts basis and not a transaction basis. The same effect can be approximated through apportioning the multistate income of a firm based on sales to other states.



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the exempted good does not receive a credit for VAT paid earlier in the production process, exempting goods in the tax chain can have the counter intuitive effect of increasing VAT revenue and the tax burden. This occurs because the value added prior to the exemption is taxed twice, once before the exemption and again after the exemption. This is because the exemption breaks the chain of taxes and credits along the production process. After the exemption, the chain must start over again so that value-added created before the exemption is taxed again. Thus, a VAT system with exemptions can actually raise more revenue and impose a higher tax burden than a VAT system with no exemptions. Such an example is shown in Example 2.

### EXAMPLE 2. COMPARISON OF VAT LIABILITY UNDER EXEMPTIONS AND ZERO-RATING

	Farmer	Miller	Baker	Grocer (Retailer)	Total VAT Revenue
Exempt Miller	$\$400 * t - \$0 = \$40$	$\$700 * t^* - \$0 = \$0$	$\$950 * t - \$0 = \$95$	$\$1,000 * t - \$95 = \$5$	\$140
Zero-Rate Miller	$\$400 * t - \$0 = \$40$	$\$700 * t^* - \$40 = -\$40$	$\$950 * t - \$0 = \$95$	$\$1,000 * t - \$95 = \$5$	\$100
Exempt Grocer	$\$400 * t - \$0 = \$40$	$\$700 * t - \$40 = \$30,$	$\$950 * t - \$70 = \$25$	$\$1,000 * t^* - \$0 = \$0$	\$95
Zero-Rate Grocer	$\$400 * t - \$0 = \$40$	$\$700 * t - \$40 = \$30,$	$\$950 * t - \$70 = \$25$	$\$1,000 * t^* - \$95 = -\$95$	\$0

Note: where  $t^* = 0$ .

Compare the tax liabilities in Example 1 with those of Example 2. If the miller is exempt from the value-added tax in Example 2, then no VAT is collected from the miller on the sale of his output, nor can the miller claim credit for the tax paid on his inputs. Note that the total revenue raised in Example 2 is \$40 more than that raised in Example 1 where no exemptions are allowed. This is because the \$400 value-added produced by the farmer is taxed twice under this scenario. Note also that the burden for the baker increases by \$70 (\$95 - \$25). This increase represents the tax on the value-added by the farmer (which is taxed a second time [\$40]) and the value-added by the miller ([\$30], which is not paid by the miller). Thus, this example clarifies that the effect of an exemption is actually to shift the tax burden onto others further along the production process and not to eliminate it from the tax system. The one exception to this is when the exemption comes at the retail stage. In this case, the

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retailer pays no VAT but is allowed no credit for previous VAT payments.<sup>10</sup> Since the exemption occurs at the last link in the production process, the only revenue loss is from the exemption granted to the retailer and because the exemption occurs at the end of the production chain, there is no transfer of the tax burden.

Another type of preference is zero-rating. In zero-rating, the chain of taxes and reimbursements is not broken. In this case, no tax is levied on the value-added by the producer of the zero-rated product but the producer is allowed credit for the taxes paid on inputs at the previous stages of production. In this way, there is no double taxation in the production process or break in the VAT chain. Consider the case in Example 2 in which the miller is zero-rated. In this case the miller pays no tax on his value-added but receives a credit for the tax paid on his inputs equal to \$40. The value-added tax liability not paid by the miller is transferred to the baker. Her VAT liability is increased because there is no tax on inputs to credit against her value-added of \$95. Because the VAT chain is not broken, as it is with exemptions, the value-added of the farmer is not taxed twice and the total revenue of the system is not affected by the presence of the special treatment. On the other hand, zero-rating the retailer reduces the tax revenue to zero as all the value-added throughout the production chain is credited back to the retailer.

Zero-rating is typically applied to exported goods. On the other hand, an addition-based VAT, does not allow for special tax treatment of individual units of output since the VAT liability is not computed per transaction. The addition-based VAT is an accounts-based tax like the corporate income tax and the tax liability is computed periodically. The credit invoice and subtraction-based VAT on the other hand, is a unit-based tax like the sales tax and as such, the tax liability is computed per unit of output sold.

The effect of exemptions is easy to accommodate under the addition base tax system, as are special preferences based on firm size or industry. The effect of zero-rating exports can be simulated under an addition-based VAT by apportioning the tax base based solely on sales. If a firm sold 100 percent of its output outside of the state

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<sup>10</sup> If the retailer is able to pass the full value of the VAT payments onto consumers then she is essentially reimbursed by the consumers for previous VAT payments occurring earlier in the production chain.

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of production, then it would have no tax liability in the state of production but would probably face taxes in the state in which the output was sold.<sup>11</sup> This is the same result that would occur with zero-rating under the credit-invoice or subtraction-based method of the VAT. The higher the sales factor is in the apportioning formula, the closer the effect is to zero-rating exports. This holds true regardless of the tax base as well, so that single factor apportioning of the corporate income tax also simulates zero-rating of exports.

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<sup>11</sup> The exact source of its taxation depends on the nexus rules followed in other states.

### **III. The Michigan's Single Business Tax (SBT)**

In 1975, the State of Michigan enacted the Single Business Tax (SBT), a value-added type tax and then the only major VAT levied in the United States. The tax was so named because it largely replaced Michigan's seven traditional types of business taxes.<sup>12</sup> However, the SBT was not the first VAT levied in Michigan. From 1953 to 1967, Michigan levied the Business Activity Tax (BAT), an origin-based, subtraction-method, income VAT. Corporations and unincorporated businesses were subject to the tax. The BAT rate was initially 0.40 percent of taxable value-added and eventually rose to 0.75 percent by 1967, when it was repealed in favor of a corporate income tax. Two reasons explained the change: the corporate income tax was thought to be a good complement to the adoption of a personal income tax and the BAT was opposed by smaller firms because tax liabilities were not based on the ability-to-pay principle, but rather on resources used.

In 1975, Michigan replaced the corporate income tax with the SBT. Two major events explained the short lifespan of the profits-based tax system. First, Michigan depended heavily on its durable goods industry whose profits traditionally have fluctuated with the business cycle. These cyclical profits created great fluctuations in corporate tax collections and caused serious fiscal problems for Michigan during the economic recessions of the 1970s. Second, the 1975 fiscal crisis in Michigan left the state facing a \$200 million budget shortfall and rather than increasing business taxes to cover the revenue shortfall, the state decided to reform the business tax structure. It is in this environment that the Single Business Tax was introduced.<sup>13</sup>

#### **A. Original Structure of the Michigan SBT**

The SBT is an addition-method VAT of the consumption type. Specifically, the tax base is calculated as the sum of profits (as defined for federal tax purposes),

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<sup>12</sup> These taxes included the corporate income tax, the financial institutions income tax, the corporate franchise tax, the savings and loan association fee, the domestic insurance company privilege fee, the local government property tax on inventories, and the intangibles tax on business.

<sup>13</sup> See the following references for more on the environment prior to the tax change: Michigan Department of Treasury, 2006; Michigan House Fiscal Agency, 2003; Hines, 2002; ACIR, 1978.

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labor costs, depreciation, and interest expenses. The value of capital expenditures as well as interest receipts, dividend and royalty receipts, and any income received from partnerships could then be deducted. The SBT is a major source of tax revenue in Michigan. In FY 2003, the SBT raised around \$2 billion, or approximately 10 percent of Michigan's own-source state tax revenue.<sup>14</sup> The SBT is an origin-based tax, with a rate of 2.35 percent. Incorporated and unincorporated businesses are obliged to pay the SBT, subject to various deductions and credits.

### **B. Modifications of the Michigan SBT Structure**

As aforementioned, federal taxable income (FTI) is the starting point of computing the Single Business Tax base. This amount represents the business income or profits of a firm. However, given that the federal taxable income is equal to revenues minus costs minus depreciation, additions and subtractions are made to this figure in order to conform to the value-added concept. The SBT base is therefore defined as:

$$FTI + Depreciation^{15} + Compensation + Additions - Subtractions$$

“Additions” includes payments of interest, depreciation, and other payments, and “Subtractions” includes interest, dividends, or royalties *received* and income from partnerships.

### **C. Apportionment Formula**

Originally, the rationale for the SBT was to impose a tax on value-added produced in Michigan. However, the SBT deviated from this rationale when the legislation required that multistate firms report their national VAT base and allowed them to use an apportionment formula to apportion a percentage of their total tax base to Michigan. The formula is a weighted average based on the percentages of a firm's

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<sup>14</sup> Annual Report of the Michigan State Treasurer, Fiscal Year 2002-2003. The tax is scheduled to be eliminated by 12/31/2007.

<sup>15</sup> In order to avoid penalizing those firms that made investments prior to January 1, 1976, and were not eligible to obtain the capital acquisition deduction, provisions were included in the SBT that allowed firms to claim a deduction for depreciation on assets existing prior to January 1, 1976. (House Fiscal Agency 2003).

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sales, property, and payroll located in Michigan. Due to this type of apportionment, firms that sell production output in Michigan are taxed only in part on the value-added of goods and services produced in Michigan.

### **D. Treatment of Small and Unincorporated Businesses under the SBT**

Under the SBT structure, unincorporated businesses (sole proprietorships, partnerships, and limited liability companies) and S corporations in Michigan are required to file both the personal income tax and the SBT. In order to alleviate the double taxation, an income tax credit was added to the provisions of the SBT.<sup>16</sup> The income tax credit ranges from 20 percent of the SBT liability for firms with business income less than \$20,000 to 10 percent for firms with business income of \$40,000 or more.

Considering that more small firms than large firms tend to be unincorporated and/or unprofitable, various measures were undertaken to reduce or eliminate tax liabilities for small businesses and firms with low-profit rates. Beginning FY2003, in an effort to further reduce the burden of the SBT on small businesses, firms under \$350,000 in gross receipts were exempted from SBT and its filing requirements. Originally, the gross receipts threshold was set at \$34,000. This increase in the threshold was justified by the fact that small businesses often pay more to tax specialists to determine their tax liabilities than they owe in taxes (Hines 2002; House Fiscal Agency 2003). Other measures designed to soften the impact on small businesses include a standard exemption for businesses with income below a specified level; an alternate tax rate and based which converted the SBT into a profits based tax for startups and small businesses, and a small business credit (House Fiscal Agency 2003; Michigan Department of Treasury 2006).

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<sup>16</sup> A credit also exists for businesses with excessive compensation or gross receipts.

#### **IV. New Hampshire's Business Enterprise Tax**

The only other VAT tax currently levied in the United States is the New Hampshire Business Enterprise Tax (BET). While, it is also an origin-based VAT computed using the addition method, it is levied in conjunction with a traditional corporate income tax. Thus, unlike the Michigan SBT, the BET is not designed to be the sole form of state business taxation, though in FY 2003 revenues from the BET comprised approximately 20 percent of state tax revenues and were greater than those from the state corporate income tax. The current rate at which the BET is levied is 0.75 percent on a base of total compensation, accrued or paid interest and dividends. In the case of businesses earning income in several states, the BET is apportioned on a pro-rata basis.

##### **A. The BET Base**

The base of the BET is similar to an income-type value-added tax. In a traditional income style value-added tax, the base consists of the value of gross receipts minus the cost of inputs and the depreciation expense associated with capital. Alternatively, the income-based value-added tax can be computed as the sum of wages and other compensation, rent paid, interest paid, and profits.<sup>17</sup> The base of the BET contains a few deviations from a traditional VAT base. For instance, the New Hampshire BET base does not include rental expenses and only includes profits distributed in the form of dividends. Profits held by the company, i.e. retained earnings, are not included in the base of the New Hampshire BET. Total compensation is included in the base but health insurance contributions made by employers are not. Other exclusions from the base include military wages, moving expenses, ministerial wages, and dividends from pensions and profit-sharing and stock bonus plans. In addition, the base is further reduced by certain filing requirements. As mentioned earlier, the BET is levied in addition to a profits-based

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<sup>17</sup> Gross receipts minus the cost of goods sold represent the value added by a firm in the production process. We can achieve the same value by summing up the payments to each component in the production process for their value added, such as labor, owners of land, and capital. The remainder, profits, represents the return on investment. These may be distributed in the form of dividends or put back into the business in the form of retained earnings.

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tax, the Business Profits Tax (BPT). Businesses operating in New Hampshire are generally subject to both taxes but the BET liability is credited against the BPT tax liability.

### **B. Apportionment**

Businesses with multistate income are required to apportion their BET tax base. Each component in the tax base, compensation, interest, and dividends, has its own apportionment factor. Compensation is apportioned based on the ratio of payroll in New Hampshire to total payroll everywhere. Interest paid or accrued is apportioned based on the ratio of property owned in New Hampshire to total property owned everywhere. The “dividends paid” component is apportioned based on the ratio of sales in New Hampshire to sales everywhere.

### **C. Treatment of Small and Unincorporated Businesses**

In New Hampshire, only those companies with gross receipts in excess of \$150,000 or with a BET tax base in excess of \$75,000 are required to file a BET return and are subject to the tax. The BET is levied on all businesses including corporate, LLCs, partnerships, sole proprietors, and nonprofits.<sup>18</sup>

Since there is no personal income tax in New Hampshire, requiring noncorporate firms to pay the BET does not cause a situation of double taxation as it does in the SBT.<sup>19</sup> Therefore, the BET does not include a special tax credit for noncorporate businesses.

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<sup>18</sup> New Hampshire does not distinguish between S corporations and C corporations.

<sup>19</sup> New Hampshire residents are required to pay tax on interest and dividend earnings.



## **V. A VAT Compared to a State Corporate Income Tax System and a Retail Sales Tax**

There are several standards by which a tax can be judged. Preferred tax systems introduce as few distortions into the economy as possible, provide reliable sources of revenue, adhere to some measure of fairness, are administratively feasible, have relatively low compliance costs, and contribute to economic development of the taxing jurisdiction. No tax is superior in all these categories. The final choice of tax system depends on the weight given to each criterion by policymakers. Each standard is discussed and judged below.

A value-added tax can take several forms as discussed earlier. Most of the experience with subnational VATs, both internationally and domestically, has been with addition-based VATs. While not specified in any proposal, it is assumed that the form of the value-added tax implemented at the state level would be an addition-based VAT. The addition-based VAT, such as the SBT or the BET, is an accounts-based tax similar in administration to the corporate income tax. Canada levies a subnational credit-invoice VAT instead of an addition-based VAT. That choice is made more feasible by the presence of Canada's national credit-invoice VAT.

### **A. Comparison of a Retail Sales Tax and a VAT**

As was shown above, in an economy with no imports or exports a value-added tax is equivalent in terms of revenue raised to a retail sales tax of the same rate. In fact, a retail sales tax can be considered a value-added tax with a single deferred payment. By the same token, the value-added tax can be considered a retail sales tax that is paid incrementally throughout the chain of production. The difference is not the size of the overall tax burden or how it is distributed. The difference lies in the treatment of business inputs. With a value-added tax there is no net tax liability imposed on business inputs, except in the case of exemptions where inadvertent cascading occurs. While not usually imposed on business inputs, it is very common for business inputs to be taxed under a retail sales tax. A widely cited study by Ring (1999) estimates the share of total sales tax revenue paid by business to be on average 41 percent nationwide in 1989. The estimated share ranged from a high of 68 percent

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in Hawaii and a low of 27 percent in Alabama. The estimated share in Georgia was 36 percent. This study indicates a relatively high incidence of the taxation of business inputs in the sales tax system. Furthermore, an analysis of the gross receipts tax in Washington State (2002) indicates that business inputs are taxed between 2 and 6 times throughout the production process.

Another difference between a VAT and a retail sales tax centers on the activity creating the tax liability. A retail sales tax is a destination-based tax. It is paid by consumers based on where the goods are sold. A value-added tax can be levied either as an origin or destination-based tax. If administered as a credit-invoice method where exports from the state are zero-rated, the VAT operates as a destination based tax. If administered as an addition-based tax, the VAT operates as an origin-based tax because tax liabilities are tied to the location of production. With an origin-based tax, imports and exports of a state are taxed regardless of where consumption occurs. If the tax on business is designed to reimburse state governments for the cost of services provided to the business, then origin taxes are the appropriate choice. A destination tax, such as a sales tax, allows firms that sell goods outside the state borders to consume state provided services but reduce or eliminate their tax liability. If state policy is more concerned with encouraging exports then a destination-based tax is a better choice.

### **B. Comparison of a VAT and a Corporate Income Tax**

Both tax systems tax business income. The VAT is designed to tax the returns from the resources used to produce the business output. In this way, the VAT resembles a consumption tax on economic resources. On the other hand, the corporate income tax is levied on a base designed to represent profit or returns to the firm. In this way, the corporate income tax can be considered a tax on capital.<sup>20</sup>

Another significant difference exists between these two taxes. Firms that have no taxable income also have no corporate income tax liability. Consequently, the corporate income tax adheres to the “ability to pay” rule in which those firms with

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<sup>20</sup> Depending on the market conditions facing the corporation, this tax may be shifted to the consumers of the final product or back to labor.

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more resources pay more in taxes. Alternatively, the VAT does not adhere this rule. Under a VAT, firms are taxed based on the sum of the value of the resources used in production. This may create a tax liability when the firm is in a loss position in terms of profits. This, in fact, was one of the principle complaints against the Michigan SBT. Firms with negative corporate profits still had a positive tax liability.

### C. Efficiency

On economic grounds, broad based taxes are clearly preferred to tax systems with many exemptions and exclusions. In general, tax systems that induce the least amount of change in economic behavior directly attributable to the presence of the tax are preferred to systems that induce a larger change in consumption or production activity. Low rates and broad tax bases are attributes of a tax system that result in less disruption of the allocation of economic resources. Broad bases reduce the ability of firms to evade the tax by redefining or delaying activities or sources of income. Low rates reduce the incentive to engage in these types of tax evading practices.

Based on this definition of efficiency, one very simple measure of efficiency is the size of the tax base. Table 2 compares estimates of the base of the SBT, the BET, the traditional state corporate income tax, and a pure consumption-type VAT if levied in the State of Georgia. To construct comparable tax bases, these are simulated tax bases and do not incorporate filing thresholds or exemptions and special preferences in the tax code. For instance, the corporate income tax base presented in Table 2 is about two times larger than the base predicted from actual corporate income tax revenue collections in Georgia in 2002.<sup>21</sup> It is assumed that all for-profit businesses are included in the VAT and corporate tax base.<sup>22</sup> The bases are constructed using publicly assessable data from the Statistics of Income of the Internal Revenue Service and the Bureau of Economic Analysis.

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<sup>21</sup> Georgia corporate income tax collections for FY2002 were \$565 million. Collections for FY 2003 were \$470. This level of revenue implies a base of around \$8,625 billion.

<sup>22</sup> In practice it is expected that some sectors, such as finance or agriculture, would be exempted from the VAT. The estimated bases do not include nonprofit organizations.

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As Table 2 shows, the base of the VAT is estimated to be over 11 times larger than that of the traditional corporate income tax.<sup>23</sup> This is not quite a fair comparison though. The VAT base incorporates activities from all business entities while the corporate income tax only includes activity of corporations. The more appropriate comparison is between the VAT base and the income tax base of all business entities, including partnerships, S-corporations, and sole proprietorships. Based on this comparison, the VAT base is 6 times larger than the income tax base inclusive of all businesses.

**TABLE 2. COMPARISON OF SIMULATED TAX BASES FOR GEORGIA (2002)**

Type of Tax / Components included in base	Consumption- Based VAT	Michigan SBT	New Hampshire BET	Traditional State Corporate Income tax <sup>24</sup>
Rent Paid	Included			Subtracted Out
Interest Paid	Included	Included	Included	Subtracted Out
Dividends Paid	Included	Included	Included	Included
Retained Earnings	Included	Included		Included
Depreciation	Included	Included		Subtracted Out
Capital Expenditures	Subtracted Out	Subtracted Out		
Labor Costs	Included	Included	Included	Subtracted Out
Cost of Goods Sold				Subtracted Out
Other Expenses Associated with Production				Subtracted Out
Total Estimated Base for Georgia for 2002	\$187 Billion	\$156 Billion	\$132 Billion	\$16 Billion – Corporations Only; \$31 Billion – All Businesses

Source: Authors' calculation. Data from IRS Statistics of Income.

<sup>23</sup> The estimated value for the value-added tax base is computed from IRS Statistics of Income data. The definitions of some data components differ from that of the Bureau Economic Analysis (BEA) data. Thus, this estimate will differ from one based solely on BEA data. The estimate of the VAT base provided in Table 2 is only intended to be used as a comparison to the corporate income tax base estimate.

<sup>24</sup> We follow the definition of profits used in Kenyon, 1996. We assume that profits = retained earnings + dividends paid + depreciation.

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Another characteristic of preferred tax systems is that they generally tax all income, regardless of source or type, at the same rate. Under the traditional income tax model, corporate income tax is taxed through the corporate income tax system while noncorporate business income is taxed under the individual income tax system. Differentiation of the rules and rates between these two systems creates incentives to structure the business organization in such a way as to minimize taxes. This added tax avoidance opportunity associated with the corporate income tax adds to the inefficiency associated with this tax system. A study by Goolsbee (1998) finds that corporate revenues are lower because some firms restructure their operations as noncorporate entities. This finding is supported by other studies which find similarly significant effects on organization choice.<sup>25</sup> The value-added tax base applies to all business entities regardless of their organizational form and as such does not create the same types of distortions on the choice of organization form. On the other hand, current law in Georgia already taxes both corporate and noncorporate businesses at the same tax rate. Therefore, moving to a tax system that incorporates all business forms may not produce as much gains at the state level as is expected at the Federal level where the rates of taxation are substantially different.

Another source of inefficiency associated with the standard business income tax system is the special rules and preferences granted to firms and industries. Under the current income-based tax system, firms and/or industries are allowed deductions for certain activities such as advertising or charitable contributions. In addition, firms are allowed credits for expenses associated with research and development or various employment activities. It is just as easy to have special industry or size incentives for businesses under a VAT system as it is with a corporate income tax. This is especially true if the subnational VAT is an addition-based VAT which is administered as an accounts-based system very much like the current corporate income tax. Furthermore, the pressure to grant such preferences is just as strong under a VAT system as it is under a corporate income tax system.

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<sup>25</sup> See also Gravelle and Kotlikoff, 1989 and Carroll and Joulfaian, 1997.

**D. Equity**

The equity standard of taxation is concerned with fairness and which groups of the economy bear the burden of the tax. Fairness is a subjective measure and the best that anyone can do is to identify how the burden of a given tax is distributed throughout the economy. Before considering the distribution of the burden associated with a single tax, it is important to remember that the first objective of a tax is to raise revenue for the government. Concerns about the distribution of after-tax resources in the jurisdiction are best dealt with through credits to the system.<sup>26</sup> Furthermore, it is important to consider the equity associated with the entire tax system instead of focusing on the distributional effects of one single tax.

Having said that, in the case of the VAT, over 40 percent of the tax base comes from wages and fringe benefits. It is believed that this portion of the tax would be borne largely by labor. The remainder of the base stems from interest and dividends and profits which is assumed to be borne by owners of capital. Compared to the state corporate income tax, this may be considered less equitable because under the state corporate income tax, firms receive a deduction for wages and fringe benefits paid to employees.

Another view of equity focuses on the distribution of the tax burden over different groups. The VAT, like a retail sales tax is believed to be borne in many cases by the final consumer.<sup>27</sup> And like a retail sales tax, the burden of the VAT measured as a percent of income is borne more heavily as incomes decline. The inclusion of services in the VAT base acts to reduce the regressive nature of the VAT compared to a typical state sales tax because services are more likely to be consumed by those with higher incomes. To offset the burden of the VAT on low-income individuals, Canada offers a credit on the individual income tax return.

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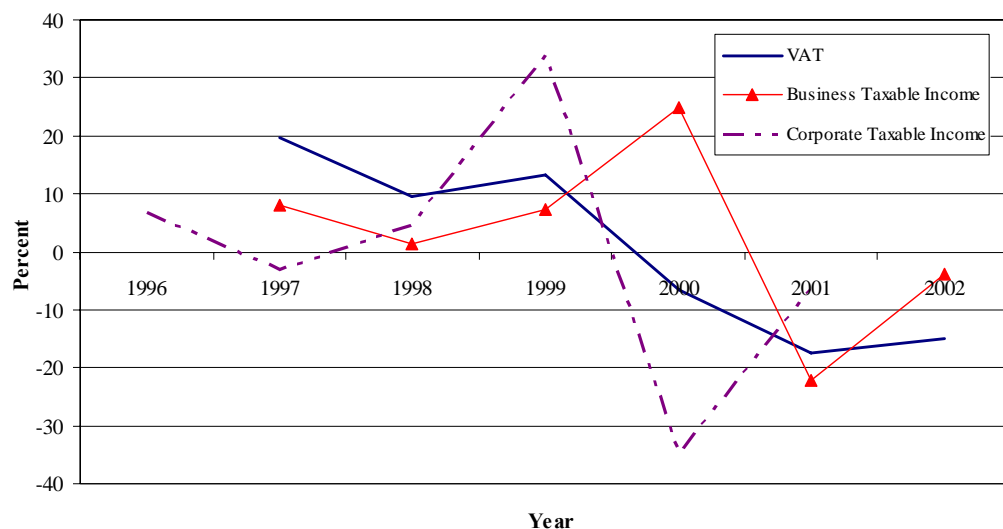
<sup>26</sup> Ebel, 1973.

<sup>27</sup> The burden of the VAT for specific products will vary by the market conditions faced by the seller.

### E. Revenue Stability and Revenue Elasticity

The standard of stability means that more stable tax bases are preferred to less stable ones. A stable tax base allows for greater predictability in revenues which in turn allows for better long range planning by state policy officials. A revenue source is stable when it grows at a predictable pace, making it possible to align revenues and expenditures over the short- and long-term. In effect, a stable revenue source avoids the need to cut spending or raise taxes during periods of economic contraction and reduces the accumulation of large of surpluses during periods of economic expansion.<sup>28</sup> Figure 1 shows the annual percent change in the several tax bases. The simulated VAT base is subject to fairly gradual changes over this time period. On the other hand, the simulated corporate and business income tax bases demonstrate much more volatility.<sup>29</sup> The difference in the change in the bases over time may be due to the stickiness of wages. Since wages can be slow to change, the VAT base may tend to be more stable over time.

**FIGURE 1. PERCENT CHANGE IN BASES FOR GEORGIA**



Source: Authors' calculations based on Georgia Department of Revenue data.

<sup>28</sup> Green, Chervin, and Lippard, 2002.

<sup>29</sup> The business income tax base follows closely the pattern of the corporate income tax, lagging by about 12 months. This lag probably stems from the difference in filing deadlines between the corporate and the individual returns.

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Another measure of revenue stability is the Coefficient of Variation (CV) which measures the degree to which the revenue stream deviates over time relative to its mean and provides a measure of revenue stability. Revenue streams with higher CV values are subject to wider swings in value over the time period. The results for this measure are shown in Table 3. The VAT base is found to be the most stable of all the business bases but only just so. This is largely due to the presence of wages in the VAT base. Wages make up an estimated 42 percent of our simulated base and are found to be the most stable component over this time frame. Alternatively, the corporate and business income tax bases are made less stable by their reliance on the value of retained earnings which is found to vary widely from year to year.

**TABLE 3. MEASURES OF REVENUE STABILITY AND ELASTICITY: 1996-2000.**

	<b>Coefficient of Variation</b>	<b>Revenue Elasticity</b>
Value-Added Tax ( <i>estimated</i> )	0.13	1.16 (1.04)
Business Income Tax ( <i>estimated</i> )	0.14	1.38 (1.24)
Corporate Income Tax ( <i>estimated</i> )	0.14	1.33 (1.19)

Source: Authors' calculations.

In addition to being predictable, state governments need revenue sources that keep pace with the demand for services. Demand for government services have been shown to increase with the growth in personal income and population. Therefore, revenue sources that increase with the growth in personal income and population are useful and preferred sources.

Revenue elasticity is designed to determine revenue adequacy or the degree to which revenues follow the growth in personal income in the economy. Revenue streams that increase by 1 percent for each 1 percent increase in personal income have elasticities equal to 1. Alternatively, a revenue stream with an elasticity of 2 means that revenues from this stream grow (fall) 2 percent for each 1 percent increase (decrease) in state personal income. The result of this measure is shown in Table 3 for the 1996-2000 time period.<sup>30</sup>

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<sup>30</sup> Data for a 1996-2002 analysis is available but the 2001-2002 recession gives distorting results. Data on sales tax collections is from Georgia Department of Revenue Annual Reports. All other data is from IRS Statistics of Income.



Of the three business bases, the VAT base is found to have an elasticity closest to 1 over the 1996-2000 time period. This indicates a revenue stream that more closely follows the change in state personal income compared to other bases. The figures in parentheses give the revenue elasticity computed against the change in state GDP. All bases are computed to have a lower elasticity based on the change in state GDP. Both the simulated corporate and business income tax bases are computed to have higher elasticities than the VAT. This indicates that in times of growth in the economy, these revenues will grow faster but that in times of economic slumps these revenues will fall by more than the general decline in the economy.

### **F. Administration and Compliance**

All tax systems have their own issues with administration and compliance. The VAT system is no exception. Because of the prevalence of the credit-invoice system around the world, more has been written about the administration and compliance associated with that type of VAT and many are more familiar with its operation. Less attention has been focused on the issues associated with the addition-based VAT. This section reviews the European experience with the credit-invoice VAT and some of the innovations that have resulted from efforts to improve compliance and lower administrative costs. This section also discusses the limited information there is about the administrative costs and compliance issues of the addition-based VAT.

#### *Credit-Invoice (C-I) VAT*

One of the main attractions of the C-I type VAT is its “self policing” mechanism. Due to the structure of the C-I VAT, businesses have an incentive to purchase inputs from a registered taxpayer who can supply an invoice stating that the VAT was paid on the inputs purchased. With the proof of payment of tax on the inputs, the purchaser can receive a credit for that tax against his VAT liability. If the seller does not provide an invoice or proof of payment, the purchaser cannot claim the credit. Since this increases the VAT liability for the purchaser, the purchaser has

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an incentive to only do business with sellers who are part of the tax system as registered traders.<sup>31</sup>

This is not to say that the C-I VAT is without its weaknesses. Keen and Smith (2007) provide an extensive discussion of VAT fraud and evasion. As the discussion above highlights, the VAT invoice can be very valuable. One source of fraud is counterfeit VAT invoices. Additional invoices or overinflated ones create a credit against the VAT liability. The problem is exacerbated when the VAT system grants refunds for circumstances where the tax paid on inputs exceeds the tax liability on the output. The possibility of extracting cash from the system creates an attractive opportunity for criminal activity that may not be as pervasive in a nonrefund system.<sup>32</sup>

Another issue brought to light by the above discussion is that the “self policing” mechanism of the VAT only holds for transactions between businesses. This mechanism breaks down for business to consumer sales. Because the invoice is of no use to the consumer, the consumer has no incentive to check that the retailer has paid the VAT on the purchased goods. Thus, for retail sales, the retailer has the incentive to underreport sales to consumers or if possible to fail to register for the VAT. By underreporting sales to consumers, the retailer lowers his gross receipts on which the VAT is levied. More common among small businesses, by failing to register, the business may be able to avoid the VAT liability all together. Failing to register may be easier in cases where there is a gross receipts threshold for filing and registering for the VAT. In such cases, businesses that exceed the threshold amount but are close simply fail to comply with the law. In other cases, businesses have been known to falsify their books to justify their nonregistration status.<sup>33</sup>

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<sup>31</sup> Businesses that are legally exempt from the VAT will not have an invoice either. Thus, exempting a business under the VAT lowers that business’s tax liability but it increases it for businesses that purchase inputs from it. This may result in a loss of comparative advantage for the exempt firm.

<sup>32</sup> Keen and Smith, 2007.

<sup>33</sup> On the other hand, there is also an incentive for some small firms to register as traders even if their sales are below the threshold level. Only as a registered trader is the business eligible to receive credit for VAT paid on its inputs. Thus, it may be in the best interest of some small businesses to register so as to claim the VAT credits.

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Other sources of fraud discussed by Keen and Smith include practices such as the failure to tax items sold to or used by the store proprietor or employees. Another practice which may or may not be intentional is the misclassification of goods from taxable to exempt. In this instance, taxable goods are classified as nontaxable, either as a way to avoid tax or due to error. Of course, a system with more exemptions is more susceptible to this type of fraud. Lastly, the VAT system is vulnerable to fraud from businesses that collect the tax but do not remit it. Thus, while the credit-invoice VAT is “self-policing” in some respects, it is by no means beyond the need for audits. It is also important to note that all of these types of fraud occurring under the VAT also occur with a retail sales tax or a corporate income tax.

### *Addition-Based VAT*

There are only a few studies that address the administration of subnational VATs. If the VAT is operated as an addition-based VAT, then the administration and compliance aspects are similar to those of the corporate income tax. The addition-based VAT has no business to business paper trail, unlike the C-I type VAT, and therefore, does not contain the same “self policing” mechanism. Fraud detection in the addition-based system is just as reliant on auditors and penalties, as the corporate income tax system.

Based on the experience of the SBT and the BET, the cost of administering a VAT is not overly high. In fact, revenue officials in Michigan calculated the cost of administering the original business VAT to be less than that spent on administering the corporate income tax.<sup>34</sup> The information requirements of the SBT and the BET are modifications of those needed for the Federal Corporate Income tax. The value of dividends paid being the one exception but not one that is necessarily hard to determine.

One of the concerns associated with implementing a VAT at the subnational level has been the openness of the state economy. States have free flowing borders and no restrictions on trade between states. This openness causes problems for the sales tax as well. For example, it is common for goods to be purchased in one state

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<sup>34</sup> Ebel, 1972.

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and used in another for the purposes of avoiding sales tax. In these cases, consumers of the items are to remit Use taxes to the state in which the good is used. There is no good mechanism to discovering which goods should be subject to the Use tax. States and local governments must rely on audits and fines to enforce compliance with the Use tax.

Most VATs incorporate some threshold so as to reduce the number of tax filers in the system. Like both the retail sales tax and the corporate income tax, the vast majority of revenues come from a concentrated number of taxpayers. From an administrative standpoint, there is an incentive to set the threshold fairly high. On the other hand, under a credit-invoice system sellers who are not registered for the VAT are not allowed to claim credit for taxes paid on their business inputs. Thus, even small sellers may want to register for the VAT because it may result in a lower tax liability. This incentive does not exist with an addition-based VAT. In an addition-based VAT there is no system of credits, so there is no offsetting incentive to register for the VAT. In this case, sellers would only benefit by falling under the threshold. In addition, larger firms would have an incentive to restructure their operations so as to fall under the threshold level.

Lastly in terms of administration, it would be necessary to add special provisions to the individual income tax so as to eliminate the potential for double taxation. Under the current income tax system, noncorporate entities pay taxes under the personal income tax system, while corporate organizations, pay under the corporate income tax. A VAT taxes both business forms as one. Such a provision was included in the Michigan SBT.

### **G. Economic Development**

The VAT has often been associated with a tax that is favorable to exports and increases the competitiveness of business in that economy. The treatment of exports and imports depends on whether the tax system is a destination or an origin-based tax. A destination-based tax taxes goods based on their place of consumption. An origin-based tax taxes goods based on their place of production. Under a destination-based system, goods produced in one state but sold in another bear only the tax from

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the consuming state. In this way, the consumer is indifferent to purchasing imported or exported goods since both are taxed at the same rate. Under an origin-based system, exported goods are taxed based on the state in which they are produced. If taxes in the exporting state are higher than the importing state, the exported items may be less competitive as their prices may be increased reflecting the higher tax burdens.

The credit-invoice VAT used throughout Europe is a destination VAT. All exports from the EU countries are zero-rated, meaning that all VAT collected during domestic trade and production is rebated if the goods are exported from the country of production. The goods are taxed upon import and the ensuing revenues are retained by the importing country, making this option more expensive for each country or state than an origin-based tax.

The key component under a destination-based VAT system is that the imported items are taxed at the same rate as the domestic production so that consumers are indifferent between the two. This parity reduces the incentive for a race to the bottom effect between states. The downside is that businesses that primarily do business outside of the state borders pay less in taxes than those firms selling within the state borders. This creates a system of unequal tax liabilities between taxpayers who have equal access to state-provided goods and services but different locations of consumers. It is important to note that this same imbalance exists with the single-factor apportionment of the corporate income tax.

Both examples of subnational VATs in the US, the SBT and the BET, are origin-based VATs. Similarly, the nonapportioned state corporate income tax is an origin-based tax. Corporations are taxed based on their profits from production, regardless of the final destination of its output. Taking the impact of apportionment into account, the state corporate income tax becomes a quasi-destination based tax. The greater reliance on the sales factor in the apportionment formula, the more the corporate income tax becomes a destination-based tax for firms with multistate income. In the case of a single factor formula based on sales, firms exporting 100 percent of their production have no state corporate tax liability in their state of location. Like the corporate income tax, the addition-based VAT used in New

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Hampshire and Michigan is an origin-based tax that is apportioned for firms with multistate income. In this way, the addition-based VAT may offer no additional advantage in terms of economic development over the current sales-apportioned corporate income tax. In addition, the same issues of defining taxable activity in the state by companies located out of state would continue to need attention and clarification.

## **VI. Summary**

A very popular form of taxation internationally, the value-added tax has been a common replacement for general sales or turnover taxes. It has not been a replacement for an income tax and in fact, is levied in several countries in conjunction with an income tax. In addition, the most common form of subnational VAT is the addition-based VAT as levied in Michigan, New Hampshire, and Italy. Canada levies a subnational VAT of the credit-invoice type but this is made feasible by the presence of a national credit-invoice system.

The VAT has several qualities that make it an attractive tax system. For instance, a VAT does not typically tax business inputs as is often the case with a retail sales tax. It does not discriminate between forms of business organization as the corporate income tax does but instead, taxes all businesses under the same system.<sup>35</sup> This creates a broader tax base and based on our results, a slightly more stable source of tax revenue than that compared to the business income tax base.

On the negative side, the VAT does not adhere to the “ability to pay” principle of taxation. Instead, the tax liability is based on the value of resources consumed to produce a firm’s output. While philosophically this may seem appropriate, in practice it means that businesses with zero profits or losses will have positive tax liabilities. In terms of the distribution of the tax burden, the VAT is expected to be borne by final consumers, labor, and in some cases, producers.

In terms of administration, the addition-based VAT on its own offers no significant improvement over a corporate income tax or a sales tax. The VAT, in any form, requires auditing. Operated in the addition form, the VAT is administered in much the same way as the corporate income tax and the tax base is just as susceptible to erosion from special preferences as the corporate income tax or sales tax. Compliance is probably more costly under the VAT when only one state levies it, only because it requires somewhat different record keeping.

As for economic development, the VAT, levied in an addition-based form, may not offer an advantage over the existing corporate income. Both systems require

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<sup>35</sup> Though due to activity-level thresholds, some smaller firms may not be taxed.

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apportioning of multistate income. The addition-based VAT is an origin-based tax, as is the existing state corporate income tax, meaning that domestic production sold in the state or exported from the state is taxed but imports to the state may not be taxed. This can have the effect of making some exports less competitive depending on the state in which they are sold. Therefore, the “race to the bottom” effect still permeates the tax system. Any gains in economic development from shifting to a VAT will ultimately depend on the specific administration of the tax and on its treatment of capital relative to the existing tax system.

In the end, the choice between a state corporate income tax and an addition-based VAT comes down to a decision about the appropriate choice for the tax base, either resources consumed or profit earned. Choosing the VAT as a replacement for a general sales tax can offer large rewards in terms of reducing the taxation of business inputs but this effect can be approximated through exemptions of sales of raw materials from the sales tax base. On the other hand, replacing the corporate income tax with an addition-based VAT may offer no additional advantage for businesses over the existing corporate income tax, and in fact, will cause many businesses to incur a positive tax liability when they have economic losses or no positive profits. Any tax reform creates new winners and losers. Determining *a priori* the overall gains to the economy is difficult and will depend on the specifics of the tax reform proposal.



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