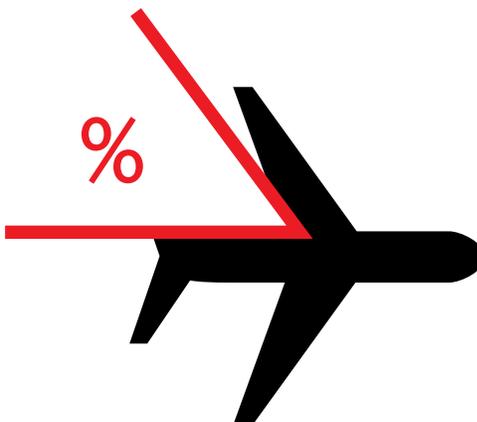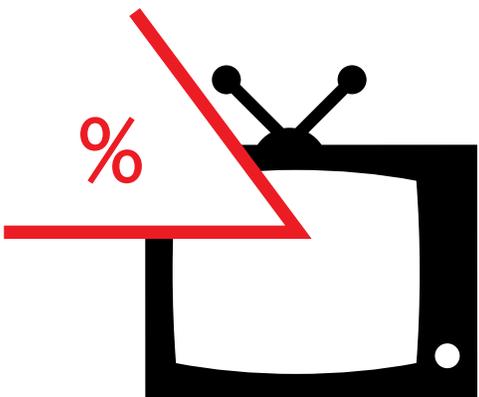# THE VALUE ADDED TAX:
Too Costly For The United States

RANDALL G. HOLCOMBE | SEPTEMBER 2010

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THE VALUE ADDED TAX:
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EXECUTIVE SUMMARY

MOST DEVELOPED ECONOMIES rely on a value added tax (VAT) for a substantial share of their tax revenue, so it is natural for the United States to look at the possibility of implementing a VAT, especially while huge budget deficits are forecast as far out as the forecasts go. While one can debate the merits of a VAT in other countries, the tax is clearly not a good fit for the United States. It would tax a base that has traditionally belonged to state governments, its introduction would bring with it intergenerational inequities, its cumbersome structure would impose large compliance and administrative costs, and it would slow economic growth. Reduced economic growth would diminish tax revenue from all tax bases. This study projects that if the United States introduced a VAT in 2010, its net effect on tax revenue would be minimal by 2030 because VAT revenue would mostly be offset by declines in revenue from other tax bases. Meanwhile, slower gross domestic product (GDP) growth would also mean that government spending as a share of GDP would rise.

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INTRODUCTION

THE VALUE ADDED tax (VAT) generates a substantial share of tax revenue in European Union (EU) countries and in most developed economies throughout the world. Table 1 shows that for the EU as a whole, the VAT raises about 30 percent of total tax revenue and is the largest single source of tax revenue. All EU countries have a VAT as a condition of EU membership, and the VAT has spread to most developed economies and to many less-developed economies around the world. The United States is unusual in not having a VAT, which is one reason the possible adoption of a VAT has been a longstanding debate in U.S. tax policy. The issue is approaching the forefront of policy debates in 2010 because substantial budget deficits are forecast as far out as forecasts are made. For example, the Congressional Budget Office forecast through 2020 projects the deficit falling to $475 billion in 2014 and rising after that to $687 billion in 2020.[1] Thus, it is reasonable to ask whether a VAT, which is so common throughout the world, might be a desirable policy option for the United States.

TABLE 1: SOURCES OF TAX REVENUE IN THE EUROPEAN UNION, 2008

TAX	PERCENTAGE OF TOTAL TAX REVENUE
Value Added Tax	30.0%
Income Tax	27.6%
Corporation Tax	10.1%
Excise Tax	9.5%
Other Tax	22.8%

Source: European Anti Poverty Network Ireland, "Sources of Tax Revenue," http://www.eapn.ie/eapn/policy/policy-focus/resources-on-taxation/sources-of-tax-revenue. The most recent data available are from 2008. Other taxes include property taxes, estate taxes, and tariffs. Calculations are by author.

As table 1 demonstrates, the VAT is more than just an additional revenue source in the EU: it is the largest single source of tax revenue there. Thus, one should be skeptical that an EU-style VAT could sim-

ply be grafted onto the current U.S. tax code. A VAT of that magnitude would require a major overhaul of the entire tax structure, and when the VAT was introduced into Europe, that is what happened. An alternative would be to add a smaller VAT to the current tax code as a revenue enhancer. However, major administrative and compliance costs go along with a VAT, and it may not be worthwhile to incur those costs in exchange for a smaller revenue flow.

VAT rates vary substantially among countries. Sweden and Denmark have the highest VAT rate at 25 percent, while Canada has the lowest rate at 5 percent. Table 2 shows standard VAT rates for various countries. While there is substantial variation, VAT

TABLE 2: VALUE ADDED TAX RATES FOR VARIOUS COUNTRIES

COUNTRY	VAT STANDARD RATE
Australia	10.0%
Austria	20.0%
Belgium	21.0%
Canada	5.0%
China	17.0%
Denmark	25.0%
Finland	22.0%
France	20.6%
Germany	16.0%
Iceland	24.5%
Ireland	21.0%
New Zealand	12.5%
Netherlands	17.5%
Norway	24.0%
Sweden	25.0%
Switzerland	7.6%
United Kingdom	17.5%

Sources: NationMaster, "Taxation Statistics > Value Added Tax > Standard Rate (Most Recent) by Country" Woolwich, Australia, http://www.nationmaster.com/graph/tax_val_add_tax_sta_rat-value-added-tax-standard-rate and "Tax Rates Around the World," http://www.worldwide-tax.com/. Data as of August 10, 2010.

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1.   Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2010 to 2020* (Washington, DC:CBO, 2010).

rates most commonly fall in the 17–25 percent range. The EU requires members to maintain a standard VAT rate of at least 15 percent. Norway has a 24.5 percent VAT rate, while the rate is 20.6 percent in France and 16 percent in Germany. Australia has a 10 percent VAT rate, and Switzerland's rate is 7.6 percent.

The rates shown in table 2 are "standard" rates, and most countries with VATs have reduced rates for certain categories of goods. Belgium, for example, with a standard rate of 21 percent, also has rates of 12, 6, and 0 percent for some goods. France, in addition to its standard rate of 19.6 percent, has 5.5 and 2.1 percent rates for some items. The United Kingdom has rates of 5 and 0 percent in addition to its 17.5 percent standard rate.

VAT is responsible for a substantial share of tax revenue in most countries where it is used, and typical rates are above 17 percent. When considering applying a VAT to the United States, then, one would want to consider whether the nation would be inclined toward a major tax reform, as occurred in Europe when the EU adopted the VAT, or whether a VAT could be scaled down and applied in the United States, perhaps using Canada as the closest example.

2 THE SIMPLE MECHANICS OF A VALUE ADDED TAX

TO UNDERSTAND THE issues involved in implementing a VAT in the United States, it is worth reviewing how a VAT operates, including a simple description of the value added that is being taxed and how the tax system monitors and collects the VAT. Table 3 shows a hypothetical example of a VAT applied to the manufacture and sale of a baseball bat. In this example, a logger sells enough wood to manufacture one bat to

a sawmill for $4.00. The sawmill then cuts the wood and sells enough lumber to manufacture one bat to a bat manufacturer for $7.00. The manufacturer makes the bat and sells it to a sporting goods store for $15.00, and the sporting goods store sells the bat to the final customer for $25.00. Value added is, as the term implies, the amount of value that is added to the product at each stage of production. For example, the sawmill buys $4.00 worth of wood and cuts it into $7.00 worth of lumber, so the sawmill adds $3.00 ($7.00–$4.00) to the value of the bat. The bat maker takes $7.00 worth of lumber and adds $8.00 ($15.00–$7.00) to the value of the bat, and so forth.

TABLE 3: A SIMPLE EXAMPLE OF A VALUE ADDED TAX

GOOD	PRICE	VALUE ADDED	10% VAT
Logger's Wood	$4.00	$4.00	$0.40
Sawmill's Lumber	$7.00	$3.00	$0.30
Bat Maker's Bat	$15.00	$8.00	$0.80
Sporting Goods Store's Bat	$25.00	$10.00	$1.00
TOTALS		$25.00	$2.50

Source: Randall G. Holcombe, Public Sector Economics: The Role of Government in the American Economy *(Englewood Cliffs, NJ: Prentice-Hall, 2006), 262.*

Value added is simply computed as the sales price of a good minus the value added at earlier stages of production.[2] One might question whether the retailer, in this case the sporting goods store, really adds any value to the bat that has already been manufactured. While one could argue that the store makes buying a bat more convenient, offers a customer some variety to choose from, and so forth, that is irrelevant from the standpoint of calculating taxable value added. The store sold the bat for $25.00, and there was

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2. This method of computing value added for tax purposes is called the credit or invoice method, and it is the focus of the discussion here because that is how value added is calculated in the EU. Essentially, it is a "subtraction method," because value added is calculated as sales minus previous value added. Taxable value added could also be calculated by the "addition method," in which the taxpayer computes value added as the sum of wages, rent, interest, net profit, and depreciation. For a more complete discussion, see Hans Fehr, Christolp Rosenberg, and Wolfgang Wiegard, *Welfare Effects of Value-Added Tax Harmonization in Europe* (Berlin: Springer-Verlag, 1995), 26–30.

$15.00 in value added at earlier stages of production, so the value added is computed to be $10.00. For the purpose of calculating VAT due, value added is an accounting concept.

This example simplifies the tax in many ways. For one thing, the example leaves out other expenses that would be incorporated into the computation of the tax. For example, the sporting goods store will buy shelving, cash registers, and other equipment, which are inputs from earlier stages of production. The cost of these inputs will reduce the store's value added. Likewise, in addition to wood, the bat manufacturer will buy lathes and other equipment to make its bats, reducing the dollar value of the manufacturer's value added. Along the same lines, the lumberjack in this example makes wood with no earlier value added, but the cost of axes and saws, and perhaps planting trees to be harvested later, would reduce the lumberjack's value added. Later, this study will consider some of the tax's complications in greater depth.

The tax's computation is straightforward. The tax rate is applied to the value added, so that in this example in which the tax rate is 10 percent, the VAT due is 10 percent of the value added at each stage of production. Note that because the final value of the good is equal to the value added at each stage of production, the total VAT collected is equal to the VAT rate times the good's retail price. A 10 percent VAT would collect the same amount of revenue as a 10 percent retail sales tax.

3   ADMINISTRATION AND ENFORCEMENT OF A VALUE ADDED TAX

THE ADMINISTRATION OF the VAT provides a mechanism that enables taxpayers to compute the amount they owe, and it provides some monitoring and enforcement to increase compliance. When a taxpayer pays the VAT, the taxpayer gets a receipt, which follows the good. The amount of VAT a taxpayer owes, then, equals the taxpayer's sales minus value added at earlier stages, which is the sum of value added as indicated by the receipts the taxpayer has from earlier sales.

Consider the example of the baseball bat from the previous section. The logger, having no earlier receipts, has sales of $4.00, so he pays a VAT of 10 percent of that amount, or $0.40. When the logger sells the wood to the sawmill, that receipt goes with the wood. The sawmill sells the lumber for $7.00, which would imply a VAT of $0.70, but the sawmill has receipts showing that the logger already paid $0.40, so the sawmill pays $0.70–$0.40, or $0.30. Likewise, the bat manufacturer's bat sells for $15.00, which implies a VAT of $1.50, but subtracting out the $0.40 and $0.30 taxes previously paid, for which the manufacturer has receipts, the bat manufacturer pays $1.50–$0.40–$0.30, or $0.80. This mechanism enforces compliance because if one of the earlier producers did not pay the VAT, the later producer would not have the receipt, and thus would be liable for more than his share. For example, if the sawmill did not pay its $0.30 VAT, the bat manufacturer would not have the receipt for that amount of tax paid, so he would owe $1.50–$0.40, or $1.10. Taxes evaded in earlier stages of production would be due at later stages, which helps enforce compliance.

Even this simple example illustrates that a VAT requires a substantial amount of record keeping for both taxpayers and the government. Taxpayers must maintain records of VAT payments for all purchases, and to audit for compliance, the government must be able to match suppliers' payments to the credits for those payments taken by subsequent taxpayers.

4   THE VALUE ADDED TAX AND THE SALES TAX

BOTH THE VAT and the retail sales tax are consumption taxes. A sales tax taxes the final retail sale, whereas the VAT taxes the value added at each stage of production, which adds up to the retail price of

the good, as the baseball bat example illustrates. A VAT thus taxes the same tax base as a retail sales tax. There are some significant differences, however. One difference is that many more businesses must be involved in remitting the VAT than in remitting a retail sales tax. In the baseball bat example, only the final seller—the sporting goods store—would collect a sales tax, whereas with a VAT, every business that sells anything, whether retail or wholesale, must collect and remit the tax. This process adds considerably to the administrative and compliance costs of a VAT when compared to a retail sales tax.

The VAT is more costly in another way: it is considerably more difficult to compute than a retail sales tax. Again looking at the baseball bat example, the only taxpayer in that example with a retail sales tax would be the sporting goods store, which can easily compute the tax as a percentage of the store's sales. With a VAT, the sporting goods store must first find its sales revenue, as with a sales tax, but then must calculate the value added at earlier stages of production and then subtract the earlier value added from sales to calculate its value added.

The baseball bat example is simple, but illustrates the increased complication in computing the VAT due. For a 10 percent sales tax, the retailer calculates $25.00 x .1 = $2.50. For the 10 percent VAT, the retailer calculates ($25.00 x .1)−$0.80−$0.30−$0.40 = $1.00. Now consider that not only does the retail seller have to make this calculation, but so do all of the intermediate sellers in the supply chain. Each individual taxpayer faces a more difficult calculation, with more record keeping, than would be the case with a sales tax, and in addition, the VAT adds many more taxpayers to the system. Thus, the VAT imposes much higher compliance and administrative costs than a retail sales tax of the same amount. Table 4 shows the calculations all taxpayers must make in each case to collect either a 10 percent VAT or a 10 percent retail sales tax.

TABLE 4: CALCULATING A SALES TAX AND VALUE ADDED TAX FOR THE SALE OF A BASEBALL BAT

TAXPAYER	SALES TAX CALCULATION	VAT CALCULATION
Sporting Goods Store	$25.00 x .1 = $2.50	($25.00 x .1)−$0.80 −$0.30=$0.40 =$0.80
Bat Maker	–	($15.00 x .1) −$0.30−$0.40 = $0.80
Sawmill	–	($7.00 x .1)−$0.40 = $0.30
Logger	–	($4.00 x .1) = $0.40
TOTAL	$2.50	$2.50

Source: Author's calculations.

This example is overly simple because it includes only the inventory as it moves through the supply chain and does not account for capital equipment such as the bat maker's lathes and the retailer's shelving, cash registers, and other store fixtures. VAT systems require that taxpayers depreciate capital goods, much as is done with income taxation. The calculation becomes even more complicated when records must be kept for years, depreciation schedules must be figured, and so forth. So while in theory, a VAT is a consumption tax like a retail sales tax, in practice, its computation is as complex as a corporate income tax. These administrative and compliance costs will be considered in more detail later in this study. For now, this simple example shows that a sales tax requires that many fewer firms collect taxes than a VAT does and that for those that would remit taxes under both systems, the compliance costs in terms of calculation and recordkeeping are much higher with a VAT.

Table 4 illustrates one of the more serious drawbacks of a VAT when compared to a retail sales tax. On the surface, the two appear to have the same economic effects and collect the same amount of revenue for the same tax rate. Indeed, a VAT has sometimes been referred to as a national sales tax. In practice, the administrative and compliance costs are much higher for a VAT. After some analysis comparing a VAT to a sales tax, Charles E. McLure Jr., an economist at the Hoover Institution and former deputy

assistant secretary of the Treasury for tax analysis, concludes, "I personally would prefer (though not strongly) that the federal government adopt a retail sales tax, if it is to adopt either form of general sales tax. The two taxes should be economically equivalent, so the decision can be made on administrative grounds."[3] The much lower costs of administration and compliance tip the balance for McLure.

Comparing a VAT to a sales tax reveals that the much simpler retail sales tax has many advantages.[4] Why even consider a VAT, then? There are several reasons. One relates to the audit trail businesses create because they must maintain receipts showing that earlier suppliers each paid their share of VAT or else be held liable for the taxes unpaid at earlier stages of production. This arrangement can help enforce taxpaying, but it comes with greater administrative and compliance costs. Another potential advantage of a VAT is that in its purest form, the VAT taxes all consumption once and only once. All state sales tax structures tax some goods that are not final retail purchases: For the average state, only 59 percent of sales tax collections are actually levied on final goods.[5] The rest comes from the taxation of intermediate goods. The result is tax pyramiding (double taxation). Double taxation can occur with a VAT when sellers are exempt (discussed later), but it is not as common as taxation of intermediate goods under a sales tax.

Another feature of a VAT is that it is more hidden than a retail sales tax. Many citizens will observe that, as in the baseball bat example, a VAT is paid by producers, whereas a sales tax is levied on consumers. However, economic analysis shows that the exact same individuals end up bearing the exact same tax burden for a sales tax and a VAT levied at the same rate. The common sense of this is that producers treat VAT payments as a cost that ends up being passed up to purchasers in the form of a higher price. While the economic effects are the same, the mistaken perception may be that a VAT is a tax on businesses while a sales tax falls on consumers. While the burden of the two taxes falls on exactly the same taxpayers in the end, this misperception can lower the political resistance to a VAT. Some people favor hidden taxes. If people must pay taxes anyway, why not levy them in the way that is least painful to taxpayers? Other people dislike hidden taxes because they hide the true cost of government. Whether the more opaque nature of a VAT is an advantage or a disadvantage depends on whether one favors taxes that are easy for taxpayers to see and understand.

Despite the apparent advantages (and some disadvantages) of a retail sales tax over a VAT, the main reason the VAT is so widely used is only partially related to its intrinsic advantages. It has more to do with the EU's agreement that all member states use it.

5 THE ORIGINS OF THE VALUE ADDED TAX

THE WIDESPREAD USE of the VAT began in the 1960s in the EU, then called the European Economic Community (EEC). All EEC countries adopted the VAT in an effort toward tax harmonization, setting the foundation for the European free-trade zone.[6] A frequent argument in support of tariffs, quotas, and other trade restrictions is that the tax structure of foreign countries sometimes subsidizes their producers and gives them an unfair advantage over

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3. Charles E. McLure Jr. and Norman B. Ture, *Value Added Tax: Two Views* (Washington, DC: American Enterprise Institute, 1972), 68.

4. Randall Holcombe, "The Value Added Tax and the Sales Tax," *Rivista Internazionale di Scienze Economiche e Commerciali* 37, no. 9 (September 1990): 799–815.

5. Raymond J. Ring Jr., "Consumers' Share and Producers' Share of the General Sales Tax," *National Tax Journal* 52, no. 1 (March 1999): 79–90.

6. G. S. A. Wheatcroft, *Value Added Tax in the Enlarged Common Market* (New York: John Wiley & Sons, 1973).

domestic firms. To mitigate that argument, the EEC countries agreed to adopt the same basic tax structure, and that structure called for heavy reliance on the VAT. Prior to that arrangement, France had already adopted a VAT in 1954,[7] but other countries had a variety of transaction-based taxes, including sales taxes and turnover taxes.[8] The United Kingdom considered a VAT in the 1960s, but rejected it in favor of other transaction-based taxes that were easier to administer.[9] Subsequently, the United Kingdom had to adopt the VAT as a condition of EEC membership.

After the harmonization agreement, the EEC countries adopted the VAT from 1968 through 1973, partly on economic grounds and partly because of the history of taxation in Europe prior to harmonization. The VAT offered some efficiency advantages over other taxes then in use—especially turnover taxes, which are notoriously inefficient—but it was adopted primarily as a result of the agreement to harmonize tax structures.

Once established in the EEC, the VAT spread to other countries that followed the EEC model. It is often difficult for governments to resist new sources of tax revenue, and that is precisely the motivation VAT supporters in the United States have at present. Note, however, that the motivation for the adoption of a VAT in the EU—tax harmonization—does not apply to the United States, and the inefficient taxes the VAT replaced, like turnover taxes, are not a part of the U.S. tax structure.

6 THE REVENUE POTENTIAL OF THE VALUE ADDED TAX

WHILE THE PRIMARY motivation at the moment for considering a VAT in the United States is its revenue-raising potential, in the past, supporters have promoted the VAT as a possible substitute for the federal income tax, either by abolishing the income tax altogether and substituting a VAT or by lowering income tax rates and substituting VAT revenue in a revenue-neutral tax reform. Along these lines, it is interesting to examine the effect of introducing the VAT into the EEC. Most member nations said they would adopt a VAT to redesign their tax structures to comply with the EEC regulations but that they would undertake the reforms in a revenue-neutral manner. Instead, throughout the EEC, tax revenue increased substantially when governments introduced the VAT.[10] The evidence linking increases in revenue to the VAT is all the more clear because its introduction was staggered; EEC countries introduced it between 1967 and 1973. Had the VAT been introduced in the same year in every country, another event could have been responsible for the simultaneous ratcheting up of tax revenues, but because both the VAT introduction and the revenue increases were staggered—with the revenue increases immediately following the VAT introduction—the VAT's causal effect on revenue increases is more clear. Statistical analysis shows a clear ratcheting up in the level of revenue, followed by an increase in the growth rate of revenue, after the introduction of the VAT.

7.   Jean-Pierre Balladur and Antoine Coutiere, "France," in *The Value-Added Tax: Lessons from Europe*, ed. Henry J. Aaron (Washington, DC: Brookings Institution, 1981), 19–29.

8.   Turnover taxes are assessed on every transaction, whether it involves the purchase of retail goods or intermediate goods. They tax the same transactions as a VAT, but without giving credit for taxes paid at earlier stages of production. This system creates tax pyramiding, as inputs taxed at earlier stages of production are taxed again and again as they move through the production process. Turnover taxes create an inefficient incentive for vertical integration, because if a firm produces inputs for itself, it can avoid buying them from a supplier and avoid paying the taxes on that transaction. Because some final goods will have more intermediate stages than others, goods with many intermediate transactions in the production process ultimately will be taxed more than those with fewer transactions.

9.   Douglas Dosser, "The Value Added Tax in the UK and the EEC," in *The Political Economy of Taxation*, eds. Alan Peacock and Francesco Forte (New York: St. Martin's Press, 1981).

10. Randall Holcombe and Jeffrey A. Mills, "Is Revenue-Neutral Tax Reform Revenue Neutral?" *Public Finance Quarterly* 22, no. 1 (January 1994): 65–85.

As Brookings Institution economist Henry J. Aaron notes, "The proportion of gross domestic product absorbed by taxation in five of the six countries [covered in *The Value-Added Tax: Lessons from Europe*] increased after the value added tax was adopted. . . . While the value added tax might be used to reduce other taxes and as a part of a program of fiscal retrenchment in the United States, it is important to recognize that the United States would be blazing a trail for fiscal forbearance not traversed by any of the countries covered in this book."[11] Aaron says that regardless of VAT advocates' stated intentions, the evidence in countries that have adopted a VAT shows that doing so increases tax collections. Of course, the motivation of many who advocate a VAT in 2010 is to increase government revenue, but note that Aaron's comment refers to VAT introductions in countries that said the VAT would be revenue neutral. In those countries, it turned out to be a substantial revenue enhancer. Introducing the VAT with the *intention* of enhancing revenue would suggest that a VAT would create an even greater tax burden on Americans than its proponents initially forecast.

Another issue is that a VAT would not only produce an increase in tax revenue when it was introduced, but once established, it would also have the potential to increase the tax burden further through increases in the VAT rate. For a recent example, the United Kingdom's standard rate of 17.5 percent took effect January 1, 2010; prior to 2010 the rate was 15 percent. Once a VAT is in place, it is relatively easy to raise the rate to generate more revenue.

It should be obvious that it will be a harder sell to introduce a new tax like a VAT than to increase the tax rate once the tax is in place. In the United States, politicians have changed federal income tax rates throughout the history of the income tax relatively easily, and while rates have adjusted both up and down, the long-run trend has clearly been up. When the federal income tax was introduced in 1913, the highest tax bracket was 7 percent—which is lower than the lowest bracket today.

11. Aaron, ed., *The Value-Added Tax*.

Table 5 shows the increases in VAT rates in Canada, Japan, and the EU countries. Canada is the only country that has reduced its VAT rate since its introduction. The average rate among all countries in the table at the time they each implemented a VAT was 9.88 percent, and it is now nearly 16 percent. The average percentage increase in the rates of the countries in the table is 62.7 percent. Not only did VAT revenue immediately add to the size of government in the EU countries when they introduced the VAT, rates increased substantially over time, adding even more to the growth of government.

TABLE 5: CHANGES IN RATES OF VALUE ADDED TAXES SINCE INTRODUCTION, VARIOUS COUNTRIES

COUNTRY	ORIGINAL RATE	CURRENT RATE	PERCENT CHANGE
Canada	7%	5%	−28.5%
Denmark	9%	25%	177.8%
France	13.6%	19.6%	44.1%
Germany	10%	19%	90.0%
Italy	12%	20%	66.7%
Japan	3%	5%	66.7%
Spain	12%	16%	33.3%
Sweden	17.7%	25%	41.2%
Switzerland	6.5%	7.6%	16.9%
United Kingdom	8%	17.5%	118.8%
AVERAGE	9.88%	15.97%	62.7%

Source: Tax rates from the Wall Street Journal, *April 15, 2010, online edition. Percent change calculated by the author.*

Politically, the revenue-raising potential of the VAT is a key issue. Proponents of the VAT support it because they see it as a mechanism that can enable government revenue to grow, whereas opponents fear it for the same reason. Both supporters and opponents view the VAT as a tax that will enable a larger government sector. In the political environment of 2010, it is not difficult to frame the debate on the merits of the VAT as a debate between supporters who want a permanently larger federal government

and opponents who want to limit the size of the federal government. In fact, the debate over the VAT has been framed this way for decades. Three decades ago, economics professor Richard W. Lindholm advocated a VAT as a method of coordinating "the relationship between tax reform and the rapidly expanded and expanding level of social expenditures."[12] Two decades ago, Jon Hakken, sounding eerily prescient, concluded, "The most immediate role for a VAT is to fund the revenue gap that would result from an expansion of health care benefits and coverage."[13] Both Lindholm's and Hakken's statements could have been made today. The coupling of a VAT with big government has always been an integral part of the discussion of the desirability of a VAT.

| 7 | INTERGENERATIONAL INEQUITIES |

THE U.S. FEDERAL income tax, currently the largest source of tax revenue for the federal government, taxes income when it is earned. The VAT, in contrast, taxes consumption at the time the consumption takes place. Thus, in a country that has only a VAT, if one earns income but saves it, that income will not be taxed until it is spent. Similarly, if one spends by drawing down savings, that previously saved income is taxed by a VAT at the time it is spent.

Introducing a VAT in the United States would result in intergenerational inequities were a substantial VAT implemented to partially replace an income tax. A simple example demonstrates this problem. Assume there is a 20 percent tax on all income and no VAT. People earn income during their earning years, pay the 20 percent tax, and then buy things tax free after they retire. Now assume the 20 percent

income tax is replaced by a 20 percent VAT. Under a VAT, people earn income and pay no tax on money they are saving for consumption when they retire, but pay a 20 percent VAT on consumption expenditures, including consumption after retirement. If a VAT replaces an income tax, seniors will have paid the 20 percent income tax for their working years, giving them less for retirement, and then will pay the 20 percent VAT on their expenditures after they retire. They will be doubly taxed when compared to current workers, who will not have the income tax liability during their working years.

The intergenerational inequity would be mitigated if a VAT were added to the current tax structure with no change in other taxes. It would just amount to a tax increase. Even so, it would be a tax increase that retirees did not plan for when they were setting aside assets for their retirement years. Younger people would have a chance to build the expectation of higher taxes into their retirement plans.

| 8 | OVERLAPPING TAX BASES |

THE UNITED STATES has a much more decentralized system of government than most other nations that use the VAT, and the tax base that would be taxed under a VAT—consumption—is a major source of revenue for state governments. A VAT at the federal level would tax that same tax base states rely on for about 32 percent of their tax revenue.[14] Some states—Alaska, Delaware, Montana, New Hampshire, and Oregon—levy no state sales taxes. States that levy sales taxes have rates that vary from 4 percent to 8.25 percent. In addition, many states allow local governments to levy a sales tax on top of the state sales tax,

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12. Richard W. Lindholm, *The Economics of VAT* (Lexington, MA: Lexington Books, 1980),1.

13. Jon Hakken, "Has the Time Come for a VAT in the U.S.?" *National Tax Association Proceedings of the Eighty-Sixth Annual Conference* (St. Paul, MN: 1993), 94.

14. U.S. Census Bureau, *Statistical Abstract of the United States*, 2010 ed., table 418.

so, for example, combined state and local sales taxes are as high as 10.75 percent in parts of California and 9.75 percent in Chicago. Louisiana has a 4 percent sales-tax rate, but New Orleans adds a local tax for a total of 9 percent.

In the EU, the VAT was designed as a replacement for other transaction-based consumption taxes like the sales tax, whereas if a VAT were to be introduced in the United States, it would be added to the existing sales taxes collected by states. Any tax has a disincentive effect because it discourages the taxed activity. This disincentive effect is variously called the welfare loss of taxation, excess burden of taxation, or deadweight loss of taxation. All of these terms mean the same thing. The welfare loss occurs because in addition to the tax taking money from taxpayers (that is, the burden of the tax), it also alters their behavior by giving them an incentive to avoid the tax (that is, the excess burden). A tax on consumption, like a sales tax or VAT, gives people an incentive to avoid the tax by buying untaxed goods or by working less and taking more leisure, for example. The welfare loss occurs because people change their behavior from what they otherwise would prefer because of the tax imposition. Actions undertaken only to avoid paying taxes are inefficient and decrease welfare. Because taxes in general are levied on wealth and income-producing activities, higher tax burdens result in lower incomes and economic growth.

An appendix to this study uses a supply and demand framework that will be familiar to students of economics to illustrate that the welfare loss of a VAT placed on top of state sales taxes would result in a substantially higher excess burden of taxation than a VAT of the same rate in a tax system without state sales taxes. The analysis in the appendix arrives at two conclusions that are important when considering levying a VAT in the United States in states that levy a sales tax on the same tax base. First, even if the initial VAT rate is modest, once imposed, both state governments, with their sales taxes, and the federal government, with its VAT, will have the tendency to raise rates so that the combined sales-tax plus VAT rate would be larger than would be the case if a single level of gov-

ernment controlled both sales-tax and VAT rates. This is because when one government decides the level of its tax rate, it has no incentive to consider that a higher rate will decrease the tax collections of the other government. For example, the federal government would be likely to set its rate without considering that VAT collections would reduce state sales-tax collections. Some evidence that this is the case is that even in the current discussions of a federal VAT, analysts rarely consider its impact on state sales-tax collections and even more rarely view this impact as an argument against the VAT. Second, a federal VAT would lower state sales-tax collections in any event, so state revenue would suffer if the federal government imposed a VAT. All taxes reduce the economic activities they tax, so adding a VAT on top of state sales taxes would reduce the sales-tax base states now rely on for a substantial amount of their revenue.

These conclusions apply to adopting a VAT in the United States, where states are already using a sales tax. In contrast, in the EU, where the VAT takes the place of other consumption taxes, these arguments do not apply. This analysis demonstrates one reason a VAT is less appropriate in a more decentralized fiscal system like that of the United States, where the VAT base is already being taxed, than in more centralized fiscal systems like those of the EU countries, which use the VAT in place of sales taxes.

To get an idea of the magnitude of the excess burden of a VAT piggybacked on state sales taxes, the appendix makes a rough calculation assuming that a 5 percent VAT is placed on top of the 5.75 percent sales tax that is the median rate in all states. These calculations show that tacking a 5 percent VAT onto the existing sales tax produces an excess burden 4.6 times higher than if the 5 percent VAT were applied in the absence of a sales tax. The excess burden of a 3 percent VAT would be 8.6 times greater if piggybacked on top of the current sales tax than it would be if levied by itself. The higher the state sales-tax rate, the higher the excess burden of the VAT; in states like California that have high sales taxes, the welfare loss would be many times greater than it would be in states like Oregon, which levies no sales taxes.

While most countries that employ a VAT do not have a retail sales tax, Canada has both a VAT and provincial sales taxes. The Canadian VAT rate is currently 5 percent, and Quebec, as an example, has a 7.5 percent sales tax; the combined rate is 12.5 percent. While there are some problems and inefficiencies, the system of overlapping tax bases does work tolerably well in Canada.[15] However, the fact that such an overlapping system can work administratively does not take away from the inefficiencies associated with having two governments taxing the same tax base. Administrative and compliance costs are much higher when taxpayers must separately figure the tax on two different bases.[16] Even though the system works in an administrative sense, the inefficiencies that come with applying both federal and provincial taxes to the same tax base remain, and the arguments in this section (illustrated in the appendix) show why the VAT places an especially heavy burden on the Canadian economy—because it is piggybacked on top of a sales tax.

The ultimate conclusion is that because states already tax consumption through sales taxes, a VAT in the United States would be less desirable than in the EU, where the VAT substitutes for retail sales taxes. The welfare cost of a VAT on top of a sales tax is many times higher than it it is when the VAT is the only tax on consumption, as it is in the EU.

9 ADMINISTERING AND COMPLYING WITH A VALUE ADDED TAX

IN THEORY, THE VAT is a tax on consumption, but in practice, calculating the amount of VAT due is as complex as calculating the amount of income tax due, as Valerie Strachan, a tax administrator in the United Kingdom, notes.[17] To see how the VAT generates administrative and compliance costs, one needs to understand some of the details regarding the way a VAT is administered.

Exempt Suppliers. Just as states have exempted some goods from sales taxation, countries that use a VAT exempt some suppliers. Countries that use the VAT commonly exempt suppliers of medical services, education, rental housing, financial services, and original art, to name a few common exemptions. Exempt suppliers do not have to pay a VAT or keep VAT records.[18] As a result, some goods are taxed at different rates than others. Consider again the simple example of the baseball bat manufacturer in table 3. If the retailer in this example were exempt, then the $1.00 tax collected at that stage of production would not be due, and the VAT on the baseball bat would be $1.50, not $2.50 as in the table. Even with a single rate, exempt goods and services generate different effective VAT rates.

The effective VAT rate rises if the exemption is for an intermediate supplier. Again returning to the example in table 3, assume that sawmills are exempt from the VAT. When the bat maker buys the exempt lumber from the sawmill, the sawmill does not pass

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15. Michael Rushton, "A Value-Added Tax for the United States: Lessons from Canadian Experience," *National Tax Association Proceedings of the Eighty-Sixth Annual Conference* (St. Paul, MN: 1993), 96–100; and Richard M. Bird, Jack M. Mintz, and Thomas A. Wilson, "Coordinating Federal and Provincial Sales Taxes: Lessons from the Canadian Experience," *National Tax Journal* 59, no. 4 (December 2006): 889–903.

16. Robert E. Plamondon and David Zussman, "The Compliance Costs of Canada's Major Tax Systems and the Impact of Single Administration," *Canadian Tax Journal* 46, no. 4 (1998): 761–85.

17. Valerie Strachan, "VAT in the UK: The Tax Collector's View," *The Political Economy of Taxation*, eds. Peacock and Forte.

18. Alan A. Tait, *Value Added Tax: International Practice and Problems* (Washington, DC: International Monetary Fund, 1988), 50–53.

any VAT records along, so when the bat maker sells the bat for $15.00, he must pay a VAT of $1.50. The bat maker is unable to claim the VAT already paid by the logger because the record of that payment is not passed along by the exempt sawmill. Then the retailer pays a VAT of $1.00 as in that example, but the logger also paid a VAT of $0.40, so the total VAT on the bat is $2.90 rather than $2.50. The VAT on the logger's value added is paid twice because the sawmill is exempt. As these examples show, an exemption for the final seller of the good effectively decreases the VAT rate, whereas an exemption for an intermediate supplier effectively increases the VAT rate.

Zero Rating. A good or service that is zero rated allows the seller of the zero-rated good or service to claim a credit for the VAT paid in earlier stages of production, so a zero rating means the sales price is completely free of any VAT. Some goods that are commonly zero rated are groceries, medical supplies, and newspapers. Again, return to the example in table 3 and assume that baseball bats are zero rated. In this case, when the sporting goods store gets the bat in the example, $1.50 in VAT has already been paid, so the store gets a credit for that amount and the bat is sold VAT free. Zero rating brings with it the obvious inefficiency that the tax is collected at earlier stages of production only to be rebated later. Thus, the tax has all the administrative and compliance costs of the VAT, but brings in no revenue. Tait notes that some countries have been especially aggressive in zero rating goods so that about a third of consumption purchases are zero rated.[19]

Zero rating of intermediate goods would serve little purpose, as the VAT would just be assessed at later stages of production.[20] However, some goods can be purchased both for final consumption and as inputs into later stages of production. Computers are an example. Typically, the zero rating is unaffected by the final use of the good.

Taxpayers for Whom Multiple Rates Apply. VAT accounting becomes much more complex when taxpayers engage in transactions that are taxed at different rates. Sellers are supposed to assign to goods the appropriate rate, which may not always be clear cut. For example, assume that a textile manufacturer buys cotton and manufactures cotton shirts that are taxed at the standard rate and bandages that, as medical supplies, are zero rated. For tax purposes, the cotton purchases must then be divided between the shirts and bandages, which first, may not be easy to monitor, and second, provides an incentive for evasion because if more cotton is assigned to the shirts, the total VAT paid by the taxpayer will be less. For example, assume that the manufacturer buys $40.00 worth of cotton to make a $50.00 shirt and $50.00 worth of bandages. Unrealistically assuming there are no other inputs, if the cotton is divided evenly between shirts and bandages, the value added on shirts is $30.00 ($50.00–$40.00/2) and the value added on bandages, which are zero rated and not taxed, is also $30.00. If $30.00 worth of cotton is assigned to the shirts and $10.00 to the bandages, the valued added on shirts goes down to $20.00, reducing the VAT due. The value added goes up on the bandages, but because they are zero rated, no VAT is due.

With multiple VAT rates, the complexity of the tax increases. Compliance costs are roughly double for firms that pay multiple VAT rates.[21] Also, opportunities for evasion increase. The auditing for a VAT is done primarily by accounting for previous taxes paid, as the receipts for those taxes follow the goods on which the tax is paid. When intermediate purchases go toward final goods that are taxed at different rates—including those that are zero rated—there is no way to verify compliance through accounting alone. In the cotton example in the previous paragraph, even if an examiner were on site, it would not be easy to determine how much cotton went to shirts

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19. Tait, *Value Added Tax,* 53.

20. This did not stop Ireland and Portugal from zero rating fertilizers and animal feed, however.

21. Cedric Sandford, Michael Godwin, and Peter Hardwick, *Administrative and Compliance Costs of Taxation* (Bath: Fiscal Publications, 1989).

and how much went to bandages simply by observing that the shirt makers periodically took some cotton from inventory, and the bandage makers did the same. While at first it appears that the VAT's design allows for an audit trail that ensures compliance, this example shows that evasion is possible, and it cannot be detected by looking only at taxpayers' accounting records.

Capital Investment. In theory, capital investment could be treated as an expense in a manner identical to the purchase of inventories. In practice, capital investment is depreciated in a manner similar to its treatment under the U.S. income tax code. Expensing is much simpler and has much lower compliance costs than depreciating, because with expensing the entire expense is treated the same way and is taken at the same time for tax purposes. With depreciation, taxpayers must keep records for each investment, including the amount already depreciated and the depreciation schedules that apply to different types of goods. It is worth noting that investment could also be expensed when calculating U.S. income taxes, but we do not do this, nor is this done in the European Union with the VAT.[22] While this practice would reduce administrative and compliance costs, because no depreciation records would need to be kept for expensed goods, it is likely that a U.S. VAT would depreciate capital investment as is done in the European Union and as is done in the United States with income taxes.

Going back to the baseball bat in table 3, that example followed only the inventory as it moved toward the final sale and assumed away any capital investment producers made at each stage. In reality, the sporting goods store would need to buy shelving, lighting, cash registers, and other equipment. The bat maker would buy lathes. The logger would buy a saw. If these items were expensed, any firm going into business initially would have far more in VAT-taxed purchases than sales. For example, a new sporting goods store would have paid far more for its fixtures and equipment plus inventory in its first year than the revenue it received in sales that year. To illustrate with simple numbers, assume a store buys fixtures, business equipment, and so forth for $500,000 to open its business and also buys $100,000 in inventory. The store sells its inventory for $200,000. The store's total purchases on which the VAT had previously been paid are $500,000 plus $100,000, or $600,000, but the firm had only $200,000 in sales. The previous value added of $600,000 is three times the firm's sales, so subtracting its sales from value added in earlier stages gives –$400,000.

One way to deal with that negative number would be to give a rebate. Another would be to have the firm pay nothing and carry forward that –$400,000 to offset future sales. VAT countries deal with it by depreciating the initial investment. To use a simple example, suppose all investment can use straight-line depreciation (which means the same dollar amount of depreciation is taken each year) and be depreciated over ten years. The firm can then take $50,000 of the capital purchases this year, plus the $100,000 in inventory, for a total of $150,000. The firm then calculates its VAT on a value added of $50,000, which is calculated as $200,000 in sales minus $100,000 in inventory cost minus the $50,000 in depreciation.

This example is much simpler than any situation a real-world taxpayer would face, because in the example, all the capital goods were purchased at the same time and all are depreciated the same way, so they all can be placed in a single account. In the real world, businesses need to keep separate depreciation schedules for different assets, depreciation schedules vary for different categories of assets, and businesses make capital investments continually. How many of these complexities would apply to a U.S. VAT is speculative, because the structure of a U.S. VAT has not even been sketched. The point is that, typically, capital goods are treated differently under a VAT for the same reason they are treated differently under an income tax, and the complications

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22. Robert E. Hall and Alvin Rabushka, *The Flat Tax* (Stanford, CA: Hoover Institution Press, 1985).

that result are of the same magnitude. While a VAT is sometimes referred to as a sales tax, the VAT's calculation is much more complex.

Exports and Imports. To maintain tax neutrality, taxpayers receive a rebate for any VAT paid on exported goods and must pay the VAT on 100 percent of the value of imports. If this were not the case, goods produced in VAT countries would bear substantial tax penalties compared with goods produced in non-VAT countries. For example, Germany has a 19 percent VAT rate. If the tax were not rebated, automobiles produced in Germany and exported to the United States would cost 19 percent more than if they had been produced at the same manufacturing cost in the United States. German automakers already do produce some of their output in the United States (for the U.S. market, of course), but if they had to pay the VAT on autos manufactured in Germany and exported to the United States, they surely would produce a much greater percentage of their goods for sale in foreign markets in non-VAT countries. This example shows why tax harmonization was an important part of the EEC's move toward eliminating trade barriers within its common market. Different tax structures can indeed give advantages to goods produced in one country over another.

Rebating VAT payments on exports makes sense from an economic standpoint, but substantial administrative and compliance costs are associated with the practice. Businesses remit the tax, incurring all of the administrative and compliance costs that go with the system, but then the government rebates the tax, meaning the administrative and compliance costs are wasted because no revenue is raised. In a symmetrical fashion, the VAT is collected on the full value of imports. This means the VAT on a good is the same whether the good is produced domestically or imported.

Rebating the VAT on exports creates an opportunity for fraud; a business can claim to be exporting goods that actually are sold domestically and claim the VAT credit. As a result, governments must undertake physical checks to ensure that goods claimed as exports really do leave the country to be sold in foreign markets. This is but one example of an issue that can come up when a tax can be rebated after it has been collected.

The VAT Register. Because the VAT is administered with businesses claiming a credit for the VAT paid at earlier stages of production, businesses must register with the tax authority to maintain an audit trail. Otherwise, businesses could claim credit for previous VAT payments suppliers did not actually make. Only allowing credit for prior VAT payments registered with the government provides a mechanism for enforcing payment. Michael Rushton, an economics professor at Georgia State University, notes, "When firms evade taxes by not registering for the [VAT] even though they are legally obliged to, at least the value added on earlier stages of the production process [is] taxed."[23] The administrative expense of a VAT is substantial enough that small traders with infrequent transactions may be exempt, and thus not have to register, but then taxpayers later in the supply chain will be liable for that share. Needless to say, at this stage, details like this have not been worked out for a possible VAT in the United States.

Note that if small taxpayers are not required to register, this may prevent them from passing along credit for any purchases they made on which the VAT had previously been paid. Thus, there is a tax disincentive for dealing with any supplier of intermediate goods who is not registered. This gives sellers (except for retailers) an incentive to avoid being exempt, although small businesses would have to weigh VAT compliance costs against the tax advantage of being able to pass along credits to their customers. This aspect of the VAT could work against small businesses, which generate a substantial share of new job growth. VAT compliance costs are substantially higher for smaller businesses.[24]

23. Rushton, "A Value-Added Tax for the United States."
24. Sandford, Godwin, and Hardwick, *Administrative and Compliance Costs of Taxation*.

Alan Tait compiled the number of registered taxpayers as a percentage of the total population for a number of countries using the VAT for 1987, about 15 years after it was introduced in the EU, and table 6 gives figures for a group of EU countries.[25] The average of those countries is 4.8 percent, so assuming the United States adopted a VAT structure similar to that of the EU, one could conjecture that a similar number of VAT taxpayers relative to the total population would join the system. With a population of about 310 million, that would imply about 14.9 million registered VAT taxpayers in the United States. The ratio of staff to taxpayers to administer the VAT runs about 1 to 250 in the EU,[26] which would imply adding roughly 60,000 Internal Revenue Service (IRS) employees to administer an EU-type VAT in the United States.

TABLE 6: REGISTERED VAT TAXPAYERS AS A PERCENTAGE OF THE POPULATION, SELECTED EU COUNTRIES, 1987

COUNTRY	PERCENTAGE OF POPULATION
Austria	5.3%
Belgium	5.7%
Denmark	8.1%
France	5.5%
Germany	3.0%
Netherlands	3.2%
United Kingdom	2.7%
AVERAGE	4.8%

Source: Tait, Value Added Tax, *272; average calculated by the author.*

Keeping the register up to date is one of the administrative costs of a VAT. Businesses are continually forming, which adds new taxpayers to the register, and closing down, requiring their removal from the register. The register is necessary because businesses deduct the VAT already paid by their suppliers, so to audit the system, the government must check to see that the VAT credits claimed by a business match the VAT paid by the business's suppliers. VAT invoices are as valuable as cash for businesses holding them, so a registry is necessary to prevent counterfeit invoices. Without a registry that allows the government to track each individual VAT payment, the system would be subject to massive fraud. The registry must be able to verify that businesses earlier in a supply chain actually paid the VAT businesses later in the chain claim as credits. Still, two-thirds of VAT returns audited in France result in corrections for understated final sales.[27]

With this type of auditing system, the weakest link with regard to potential evasion is at the retail level, because the final consumer ultimately pays the VAT and gets no credit for the VAT paid by producers. The same is true of retail sales taxes in the United States, however, and because the entire tax is paid at the time of the final purchase rather than spread over all stages of production, evasion by retailers under a sales tax system would result in larger losses of tax revenue than under a VAT with the same rate. For example, consider both a 10 percent VAT rate and a 10 percent sales-tax rate. For a retailer responsible for one-fifth of the value added, evading a sales tax would result in the entire 10 percent tax being evaded, whereas under a VAT the evading retailer would be able to evade only his fifth of the tax, so 80 percent of the tax would be collected and only the retailer's 20 percent share would be evaded. Given

25. Tait, *Value Added Tax*, 272.

26. Tait, *Value Added Tax*, 250.

27. Agha and Haughton report the various types of corrections that resulted from audits in France, showing that two-thirds of audited returns had understated sales (of which 16 percent were deemed to be fraud, 41 percent claimed deductions for ineligible goods, and 43 percent had a variety of other causes for corrections). They do not show the percentage of returns on which at least one correction was made, so two-thirds is a lower bound on audited returns deemed to require corrections. See Ali Agha and Jonathan Haughton, "Designing VAT Systems: Some Efficiency Considerations," *Review of Economics and Statistics* 78, no. 2 (May 1996): 304, table 2.

the enforcement costs of a VAT, it is not cost effective to require smaller businesses to register and pay the VAT.[28] Presumably, if the United States introduced a VAT, some businesses would be exempt, just as they are in other countries that use a VAT.

The auditing procedure that requires taxpayers to complete returns so the VAT credits claimed by one taxpayer can be matched to the VAT payments made by others is a complexity that goes beyond the administration of an income tax; with an income tax, the tax due from one taxpayer is not a function of the taxes paid by others. Tait devotes a chapter to discussing evasion and enforcement of a VAT, and the issues are complex because the tax is complex.[29]

Evasion and fraud probably reduce VAT revenue by around 15 percent,[30] suggesting that "administrative measures alone may prove insufficient" to combat fraud and that a redesign of the VAT structure may be in order.[31] The example of the shirts and bandages made with cotton shows that one cannot ensure that businesses are complying with the tax solely through accounting procedures that match credits claimed with taxes paid. Similarly, a physical check is necessary to ensure that a business actually exports the goods for which it claims rebates.

10 ESTIMATING ADMINISTRATIVE AND COMPLIANCE COSTS OF A U.S. VALUE ADDED TAX

ANY ESTIMATE OF the administrative and compliance costs of a VAT in the United States is necessarily speculative, because while the possibility of a VAT has been discussed in general terms for decades, the exact structure of a U.S. VAT has never been. It is reasonable to consider that a U.S. VAT would be modeled after the VAT used in other countries. The EU's VAT structure has been imitated as the VAT has spread throughout the world.

Looking at studies that have estimated the compliance cost of a VAT in countries that use the tax, compliance costs for the Canadian VAT are between 3.3 and 6.6 percent of revenue collected,[32] compliance costs of the VAT are about 3.7 percent of VAT revenue collected in the United Kingdom,[33] 6.0 percent in the Netherlands,[34] and about 2.5 percent of revenue collected in Sweden.[35] A review of the literature concludes that a number of studies find that compliance costs are in the neighborhood of 3 percent of revenue collected.[36] Overall, estimates of compliance costs fall in the range of about 3–5 percent of VAT revenue collected. For the purpose of estimating the

28. Michael Keen and Jack M. Mintz, "The Optimal Threshold for a VAT," *Journal of Public Economics* 88, nos. 3–4 (March 2004): 559–576. While they develop a framework for analyzing what the threshold should be for joining the VAT registry, Keen and Mintz do not actually come up with an optimal threshold level.

29. Tait, *Value Added Tax*, ch. 14, 304–323.

30. Michael Keen and Stephen Smith, "VAT Fraud and Evasion: What Do We Know and What Can Be Done?" *National Tax Journal* 59, no. 4 (December 2006): 884.

31. Ibid., 861.

32. Plamondon and Zussman, "The Compliance Costs of Canada's Major Tax Systems."

33. Sandford, Godwin, and Hardwick, *Administrative and Compliance Costs of Taxation*.

34. Maarten A. Allers, *Administrative and Compliance Costs of Taxation and Public Transfers in the Netherlands* (Groningen: Rijksuniversiteit, 1994).

35. Hakan Malmer, "The Swedish Tax Reform in 1990–1991 and Tax Compliance Costs in Sweden," in *Tax Compliance Costs Measurement and Policy*, ed. Cedric Sandford (Birmingham, UK: Fiscal Publications, 1995), 226–262.

36. Francois Vaillancourt, Jason Clemens, and Milagros Palacios, "Compliance and Administrative Costs of Taxation in Canada," in *The Impact and Cost of Taxation in Canada: The Case for Flat Tax Reform*, ed. Jason Clemens (Vancouver: Fraser Institute, 2008).

impact of introducing a VAT into the United States, this analysis will use the estimate that compliance costs are about 4 percent in countries that now use the VAT, which is around the middle of what studies that looked at VAT compliance costs have found.

These compliance-cost estimates are for countries that collect a substantial share of their tax revenue through the VAT. Table 2 noted that VAT rates are higher, on average, than the rates discussed in 2010 for the United States. The average VAT rate of the countries listed in table 2 is 18.4 percent. A study of 29 countries that use a VAT finds that VAT revenue as a function of the VAT rate averages 52.9 percent in those countries, meaning that, on average, the VAT collects 52.9 percent of the VAT rate times GDP.[37] Thus, the average VAT rate of 18.4 percent would collect only 52.9 percent of that amount times GDP, or 9.7 percent of GDP. If compliance costs are 3 percent of this amount, they would be 0.3 percent of GDP, and if they were 5 percent of revenue raised, the compliance cost would be 0.48 percent of GDP. Compliance costs of 4 percent would be 0.39 percent of GDP. The 2010 *Statistical Abstract of the United States* shows 2008 GDP as $14,265 billion,[38] so compliance costs for a VAT would be about $55.6 billion per year. If the United States introduced a VAT, nobody is currently talking about implementing it at the high rates the EU uses, but the administrative and compliance costs would be similar regardless of the rate used. It does not cost any less to administer and comply with the same tax if the rate is lower.

To get an idea about the administrative costs associated with the introduction of a VAT, the Government Accounting Office reports that the Internal Revenue Service (IRS) budget for 2008 is about $11 billion, and employs about 90,000 people.[39] This study estimates that adding an EU-style VAT to the tax system would to add 14.9 million registered VAT taxpayers to the system, which would require about 60,000 IRS employees to administer the system. Thus, with a current $11 billion budget, adding another 60,000 employees would increase the IRS to about 150,000 employees and would increase the IRS budget by about $7.3 billion. The administrative and compliance costs together would be $62.9 billion a year, or about 0.44 percent of GDP.

This estimate is approximate, because the exact structure of a VAT for the United States has not even been sketched out. The estimate assumes that the United States would adopt an EU-style VAT, and that compliance costs would be similar to those in other countries that now employ a VAT. The earlier discussion regarding the details of a VAT structure shows that a VAT structure is complex in practice, even though the idea behind it is simple in theory. One can see why compliance would be costly, and reading an account like that of Strachan, the British tax collector who described the administrative complexities of the VAT, reinforces the idea that the VAT is costly to comply with and to administer.[40] This estimate is as likely to be low as it is to be high. Estimates of the compliance costs for the federal income tax suggest compliance costs about double the $55.6 billion estimate in the previous paragraph for the corporate income tax, and the VAT's structure is similarly complex.[41] Further, one could not piggyback the compliance costs onto the existing compliance costs of the current income tax, because the government requires an entirely different pro-

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37. Michael Keen and Ben Lockwood, "Is the VAT a Money Machine?" *National Tax Journal* 59, no. 4 (December 2006): 905–928.

38. *Statistical Abstract of the United States*, 2010 ed., table 651. This study used 2008 data because at the time of writing, it is the most recent year for which the *Statistical Abstract* reports income-tax data.

39. Government Accountability Office (GAO), *Internal Revenue Service Fiscal Year 2009 Budget Request and Interim Performance Results of IRS's 2008 Tax Filing Season* (Washington, DC: GAO, 2008); and U.S. News & World Report, "Internal Revenue Service—Treasury, at a Glance," *Best Places to Work in the Federal Government 2007* (Washington, DC: U.S. News & World Report, 2007), http://www.usnews.com/usnews/biztech/best-places-to-work/sub-agencies/tr93_at-a-glance.htm.

40. Strachan, "VAT in the UK: The Tax Collector's View."

41. An example is Scott A. Hodge, J. Scott Moody, and Wendy P. Warcholik, "The Rising Cost of Complying with the Federal Income Tax," *Tax Foundation Special Report* no. 138 (Washington, DC: The Tax Foundation, January 2006).

cess of accounting to calculate taxable value added than it requires for taxable income.

11 THE STATIC COSTS OF A VALUE ADDED TAX

THE STATIC WELFARE loss from a tax comes from four sources: (1) the excess burden of the tax, (2) compliance costs borne by taxpayers, (3) administrative costs incurred by government, and (4) political costs associated with implementing and effecting tax law. The section on overlapping tax bases showed that the excess burden of a VAT would be higher in the United States than in the EU because it would be tacked onto the same tax base used by state sales taxes, and the section demonstrated how to estimate the excess burden of a VAT. The previous section gave a rough calculation of the compliance and administrative costs of a VAT, which would appear to be in the neighborhood of 0.44 percent of GDP. This study does not attempt to measure the political costs associated with a VAT, but those costs are very relevant.[42]

Individuals incur political costs when they expend resources to influence legislation. There are heavy political costs associated with taxation, because taxpayers engage in lobbying efforts to reduce their taxes. With regard to the federal income tax, taxpayers lobby for lower rates, tax deductions, credits, exemptions, depreciation schedules, and so forth to give them favorable tax treatment. The description of the structure of a VAT shows that the same types of opportunities exist for goods to be exempt, zero

rated, or given differential rates; for depreciation schedules to be adjusted; and so forth. Meanwhile, those in government incur political costs to hold hearings, analyze proposals for changing the VAT structure, and so forth. One would expect that the political costs of a VAT would be in the neighborhood of the political costs of an income tax. While political costs could be analyzed in more detail,[43] because the present study does not estimate the political costs, it underestimates the total cost of a VAT.

This study uses the calculation method used in the appendix on overlapping tax bases to estimate the excess burden of a VAT, but, as already noted, because of zero ratings as well as other nonstandard rates, evasion, and any other reasons the tax is not collected, a VAT rate of a given percentage will not collect that same percentage of GDP. One study finds that VAT revenue as a function of the VAT rate averages 52.9 percent,[44] which means that, on average, the VAT collects 52.9 percent of the VAT rate times GDP. For example, on average, a VAT rate of 10 percent would collect revenue equal to 5.29 percent of GDP.

Looking at the excess burden of a VAT, following the methodology from the appendix, a VAT of 1 percent would have an excess burden of 0.125 percent of taxed consumption, but because a 1 percent VAT collects only 0.529 percent of GDP, the excess burden would be 0.125 x 0.529 = 0.066 percent of GDP. Table 7 calculates the excess burden of a VAT this way for various VAT rates, then adds the compliance and administrative costs to calculate an estimate for the entire deadweight loss (excluding political costs) of a VAT. It shows the welfare cost as a percentage of GDP and in billions of 2010 dollars for a 2010 GDP of $14.8 trillion.

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42. I do this in Randall Holcombe, *Public Sector Economics: The Role of Government in the American Economy* (Englewood Cliffs, NJ: Prentice-Hall, 2006), 219–220.

43. See Randall Holcombe, "Tax Policy from a Public Choice Perspective," *National Tax Journal* 51, no. 2 (June 1998): 359–371.

44. Keen and Lockwood, "Is the VAT a Money Machine?"

Table 7 also shows that the total welfare cost would be about 0.51 percent of GDP, or about $75.5 billion, for a 1 percent VAT in 2010. A 5 percent VAT would have a welfare cost of 0.88 percent of GDP, or $130 billion.

TABLE 7: THE EXCESS BURDEN, COMPLIANCE, AND ADMINISTRATIVE COSTS OF A VALUE ADDED TAX AS A PERCENTAGE OF GDP AND IN BILLIONS OF 2010 DOLLARS, ESTIMATES

VAT RATE	EXCESS BURDEN AS % OF GDP	TOTAL WELFARE COST AS % OF GDP	TOTAL WELFARE COST (BILLIONS)
1%	0.07%	0.51%	$75.5
2%	0.14%	0.58%	$85.8
3%	0.23%	0.67%	$99.2
4%	0.33%	0.77%	$114.0
5%	0.44%	0.88%	$130.2
7%	0.69%	1.13%	$167.2
10%	1.14%	1.58%	$233.8

Source: Author's calculations.

As illustrated in figure A.1 in the appendix, as the tax rate rises, the tax base shrinks, so revenue rises less than in proportion to the tax rate. Assuming unitary elasticity of demand and a 2010 GDP of $14.8 trillion, table 8 shows the amount of revenue a VAT of various rates would raise and the welfare cost (from table 7) as a percentage of revenue raised.

Consider the figures in table 8 in the context of employing a VAT to balance the federal budget. A 3 percent VAT rate would raise about $229 billion, which would be insufficient to balance the federal budget according to current projections as far out as projections are made. At that rate, a VAT would impose welfare losses on the economy equal to 43 percent of the revenue it raised, so the VAT would be a very costly way of raising revenue at that rate. The welfare loss declines as the rate rises because at lower

TABLE 8: VALUE ADDED TAX REVENUE AND WELFARE LOSS, 2010 ESTIMATES

VAT RATE	VAT REVENUE (BILLIONS)	WELFARE LOSS AS % OF REVENUE
1%	$77.9	96.9%
2%	$154.3	55.6%
3%	$229.1	43.3%
4%	$302.3	37.7%
5%	$373.9	34.8%
7%	$512.4	32.6%
10%	$708.4	33.0%

Source: Author's calculations.

rates a substantial share of the welfare losses come in the form of compliance and administrative costs, which will be about the same regardless of the rate.

If one wants to use a VAT to raise about half of a trillion dollars, a rate of 7 percent would raise about $512 billion, but this would impose welfare costs of $167 billion, or 33 percent of the revenue raised, on the economy. A VAT rate of 10 percent would raise about $708 billion, still insufficient to balance the federal budget under current projections.[45]

Tait concludes, "Given the likely complexity of changing to a VAT, the costs can only be justified if the VAT is a major revenue source, and this suggests a standard rate of 10 percent and above."[46] As table 8 shows, there are huge welfare losses associated with any VAT, and at lower rates, the welfare costs imposed on the economy are in excess of one-third of any tax revenue collected. Table 8 also illustrates that to use a VAT to balance the federal budget, under current deficit projections, the VAT rate would have to exceed 10 percent and be added on top of all current federal taxes.

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45. Current Congressional Budget Office projections call for the deficit to dip below $800 billion in 2014 and rise to more than $1 trillion in 2019.
46. Tait, *Value Added Tax*, 402.

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THE EFFECT OF A VALUE ADDED TAX ON PRICES

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Calculating the effect of a VAT on prices is straightforward, because a VAT is a cost that adds to the cost of production and is passed through to the consumer. Consider the effect of a retail sales tax, which has the same economic effects as a VAT. If someone buys an item for $1.00 in a state with a 6 percent sales tax, the cashier adds the sales tax to the item and the purchaser pays $1.06 for the item, including the tax. A 6 percent VAT would have the same effect, and would raise the cost of that same item to $1.06. Instead of being tacked on at the end where the purchaser can see the total amount of sales tax, the VAT will be hidden because the price will be listed up front as $1.06.

The ultimate effect is more complicated because some goods are zero rated under a VAT, some are sold by exempt businesses, and countries with a VAT use multiple rates. Not all purchases will be taxed at the full VAT rate. Using Michael Keen and Ben Lockwood's calculation that in a sample of VAT countries, VAT revenue was 52.9 percent of the VAT rate times GDP,[47] a VAT rate of 1 percent, for example, would raise overall prices by 0.529 percent when accounting for the fact that some purchases would not be taxed at all, or would be taxed at a lower rate.

If the United States instituted a 3 percent VAT, for example, purchases subject to the full VAT rate would see their prices rise by 3 percent, as final consumers must ultimately pay this new cost to producers. Because of zero rating and other factors that eliminate or reduce taxes on some purchases, the Consumer Price Index (CPI) would rise by about 1.59 percent as a result of a 3 percent VAT. A 5 percent

VAT would raise the price of full-rated purchases by 5 percent, and the overall CPI by 2.6 percent. This assumes an EU-style VAT, where purchases like automobiles would be fully taxed under the VAT, and purchases like groceries and health care would be zero rated.

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THE IMPACT OF A VALUE ADDED TAX ON ECONOMIC GROWTH

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The impact of a VAT on economic growth would depend on how the tax was implemented, what the VAT rate was, and whether the VAT was introduced as a substitute for other taxes or as a new tax. Beyond a doubt, all taxes stifle economic growth.[48] The decision to be made is whether that growth penalty is worth the economic benefits the tax revenue buys. A substantial literature based on James Gwartney and Robert Lawson's economic freedom index shows that government interference in an economy—whether through taxes, regulation, or other barriers and disincentives to economic activity—lowers a nation's growth rate.[49] Gwartney, Holcombe, and Lawson present results from an empirical study showing that an increase in government's share of GDP of 10 percent results in a reduction in the rate of economic growth of about 1 percent.[50] If a VAT is used to finance larger government, it can exact a substantial growth penalty on the economy.

Table 9 compares annual U.S. economic growth rates with other countries that use a VAT to show that variations of a percentage point or more in economic growth rates are not unusual. For the period from 1999 to 2004, which includes a mild downturn in 2001, the United States averaged a real GDP growth rate of 3 percent. By comparison, the eurozone, in

47. Keen and Lockwood, "Is the VAT a Money Machine?"

48. James Gwartney, Robert Lawson, and Randall Holcombe, "Economic Freedom, Institutional Quality, and Cross-Country Differences in Income and Growth," *Cato Journal* 24, no. 3 (Fall 2004): 205–233.

49. James Gwartney and Robert Lawson, *Economic Freedom of the World: 2009 Annual Report* (Vancouver: Fraser Institute, 2009).

50. James Gwartney, Randall Holcombe, and Robert Lawson, "The Scope of Government and the Wealth of Nations," *Cato Journal* 18, no. 2 (Fall 1998): 163–190.

which all member countries have a VAT, had a GDP growth rate of 2.1 percent during that same period. The two largest eurozone economies, France and Germany, had average annual growth rates of 2.1 percent and 1.2 percent, respectively, during that period. The United Kingdom, which also has a VAT but is outside the eurozone, matched the U.S. growth rate of 3 percent. Japan had a 1.2 percent average annual growth rate during that period. Japan, which has been plagued with slow economic growth throughout the 1990s and 2000s, introduced the VAT in 1989, shortly before its current period of stagnation.

TABLE 9: GDP GROWTH RATES, VARIOUS COUNTRIES AND REGIONS

COUNTRY	AVERAGE OVER 1999–2004	2009
United States	3.0%	−2.4%
Eurozone	2.1%	−4.0%
France	2.4%	−2.3%
Germany	1.2%	−5.0%
United Kingdom	3.0%	−5.0%
Japan	1.2%	−5.0%

Source: Inter-Agency Group on Economic and Financial Statistics, "Principal Global Indicators," from the International Monetary Fund Statistical database, http://www.principalglobalindicators.org/default.aspx.

The table also shows GDP growth rates for those same countries in 2009, a year of worldwide recession. The United States fared relatively well in 2009, with a GDP decline of 2.4 percent. France had a decline of 2.3 percent, about the same as the United States, but the other countries in the comparison had much larger declines. This table does not prove anything about the effects of a VAT, but it does illustrate the differences in economic growth rates between the United States and countries that use a VAT. As the table shows, differences of more than a percentage point in economic growth rates fall easily within the experience of today's high-income economies.

The effects of a VAT on economic growth would occur because of two sources. First, adding a VAT to the current tax structure would impose a welfare cost on the economy independent of the revenue

the tax would raise. The previous section estimated that welfare cost for various VAT rates. The VAT is a complex tax, and, regardless of the rate, the compliance and administrative costs would affect economic growth. Second, if the United States imposed a VAT as an additional revenue source, it would divert resources from the private sector to the government, and the larger public sector would also imply lower growth.

Table 10 summarizes the growth effects of a VAT for various VAT rates, first under a "revenue neutral" assumption that the VAT substitutes other taxes, and second, under a "revenue enhancement" assumption that the VAT would bring in additional revenue. In the revenue-neutral case, the VAT imposes a growth penalty on GDP equal to the compliance and administrative costs of the VAT, which were estimated as 0.44 percent of GDP. In addition to this GDP penalty imposed by the administrative and compliance costs of the VAT, economic growth would also be 0.44 percent less, so starting from a growth rate of 3 percent, which table 9 shows was the 1999–2004 U.S. average, the growth rate would fall to 2.987 percent, which the table rounds to 2.99 percent. The revenue-neutral case assumes that as the excess burden of the VAT increases with a higher VAT rate, it is offset by a reduction in the excess burden of other taxes, so the revenue-neutral case has no additional net excess burden. As the label implies, the revenue-

TABLE 10: THE EFFECT OF A VALUE ADDED TAX ON ECONOMIC GROWTH

VAT RATE	PROJECTED GDP GROWTH RATE
No VAT	3.00%
Revenue-Neutral VAT	2.99%
1%	2.94%
2%	2.88%
3%	2.83%
4%	2.79%
5%	2.73%
7%	2.62%
10%	2.46%

Source: Author's calculations.

neutral case assumes that the VAT leaves total federal revenue unchanged initially. Because it reduces economic growth, it will have a long-run negative impact on total federal revenue.

The revenue-enhancement assumption corresponds with the current political climate of using the VAT to close the deficit gap. In addition to the compliance and administrative costs, the revenue-enhancement case includes the impact of the larger public sector that the VAT would finance. Using the Gwartney, Holcombe, and Lawson estimate that an increase in the public sector of 10 percent lowers a nation's growth rate by 1 percent, and recalling that Keen and Lockwood find that VAT revenue averages 52.9 percent of the VAT rate times GDP,[51] each 1 percent increase in the VAT rate would lower the rate of economic growth by 0.0529 percent. This calculation accounts for the compliance and administrative costs and the reduction in real output that is caused by the excess burden.

The growth rates shown in table 10 are estimates, and carrying them out to two decimal places suggests more precision than is actually there. The estimates show that even the revenue-neutral case, which assumes that the VAT replaces other taxes so that total federal tax revenue remains unchanged, brings with it a small growth penalty. Adding the lower growth rates in the revenue-enhancement cases entails an even greater penalty. Even a 10 percent VAT rate would leave U.S. growth rates well above the EU rates shown in table 9. Table 9 was included to show that the growth rates estimated in table 10 are well within the bounds of the historical experience of countries that have adopted the VAT.

Table 11 shows the effect of various VAT rates on GDP looking 10 years out and 20 years out. Looking at the revenue-neutral case, a VAT that raised no additional revenue would reduce 2020 GDP to $19.8 trillion from $19.9 trillion, lowering GDP by about $100 billion and about 0.5 percent. In the revenue-enhancement case, where VAT revenue adds to existing sources of tax revenue, a 3 percent VAT

51. Keen and Lockwood, "Is the VAT a Money Machine?"

TABLE 11: PROJECTED GDP LEVELS FOR 2020 AND 2030 (TRILLIONS OF DOLLARS) FOR VARIOUS VALUE ADDED TAX RATES

VAT RATE	2020	2030
No VAT	$19.9	$26.7
Revenue-Neutral VAT	$19.8	$26.6
1%	$19.7	$26.3
2%	$19.6	$26.0
3%	$19.5	$25.8
4%	$19.4	$25.7
5%	$19.3	$25.3
7%	$19.1	$24.7
10%	$18.8	$24.0

Source: Author's calculations.

would exact a 2.1 percent GDP penalty by 2020 and a 3.7 percent GDP penalty by 2030. A 5 percent VAT rate would bring with it a 3 percent GDP penalty by 2020 and a 5.6 percent GDP penalty by 2030. A 7 percent VAT rate, which, as noted earlier, would still be insufficient to eliminate the projected deficit, would reduce GDP by 4.1 percent by 2020 and 7.5 percent by 2030.

Table 12 presents these GDP losses in comparison to the revenue that the VAT would be projected to raise for VAT rates of 3 percent, 5 percent, and 7 percent. A 3 percent VAT would reduce 2030 GDP by 3.7 percent, and a 7 percent VAT rate would reduce 2030 GDP by 7.5 percent. The next row of the table shows the GDP dollar losses in billions of 2010 dollars. The following row shows the projected VAT revenue in billions of dollars from each of these VAT rates, and as the projections show, in every case, the VAT revenue raised would be far less than the GDP losses from the VAT.

TABLE 12: PROJECTED GDP LOSSES AND VALUE ADDED TAX REVENUE FOR VARIOUS VAT RATES

VAT Rate	3%		5%		7%	
YEAR	**2020**	**2030**	**2020**	**2030**	**2020**	**2030**
% GDP Loss	2.1%	3.7%	3.0%	5.6%	4.1%	7.5%
$ GDP Loss	$412B	$982B	$601B	$1,479B	$806B	$2,014B
VAT Revenue	$309B	$409B	$510B	$668B	$707B	$915B
Fed Rev Loss	$76B	$182B	$111B	$274B	$149B	$373B
S&L Rev Loss	$57B	$136B	$83B	$204B	$111B	$278B
Net Tax Rev Inc	$176B	$91B	$316B	$190B	$447B	$264B

Source: Author's calculations.

Looking out 20 years to 2030, the GDP losses would be more than double the revenue the VAT would take in, but this does not account for reductions in other revenue because the VAT would lower GDP growth. Under the current tax structure, federal revenue is about 18.5 percent of GDP, and that percentage has remained roughly constant for decades, despite numerous changes in tax rates. This is because as tax rates change, people respond by changing their economic behavior. Higher tax rates cause people to look for tax avoidance measures, whereas when tax rates fall, tax avoidance measures are less beneficial and are used less. Because the VAT will lower GDP, the total effect of a VAT on tax revenue is the amount taken in by the VAT minus the reduced revenue from other tax bases as a result of the decline in GDP.

The next row in the table, labeled Fed Rev Loss, shows the revenue loss from current federal government tax bases if a VAT were added to the tax structure. Assuming other federal taxes take in 18.5 percent of GDP, as they have in the past, the revenue loss from current tax bases will be about 18.5 percent of the decline in GDP attributable to the VAT, and those figures appear in the Fed Rev Loss row. For example, in 2020, a 3 percent VAT would result in a decline of $76 billion in other federal tax revenue,

and a 7 percent VAT in 2030 would result in a $373 billion decline in other federal tax revenue.

State and local tax collections would be lower also. In 2007, state and local tax revenue made up 13.8 percent of GDP. If that ratio remains constant, the decline in GDP growth will lower state and local government tax revenue by that amount, and the next row in the table, labeled S&L Rev Loss, shows the loss of state and local government tax revenue. The final row in the table subtracts from VAT revenue the losses in federal, state, and local tax revenue to show the net addition a VAT would make to total tax revenue. By 2030, the net new revenue brought in would be well under 15 percent of the GDP loss as a result of a VAT introduction. For example, a 3 percent VAT would only add $91 billion in net revenue, but would cause a GDP loss of $982 billion, so in that case the GDP loss would be more than ten times the net new revenue.

By 2030, a 3 percent VAT would bring in $91 billion in net new revenue, with an estimated GDP (from table 11) of $25.8 trillion. Thus, net new revenue would be 0.35 percent of GDP, in exchange for a decline in GDP of 3.7 percent. A 7 percent VAT would add 1.1 percent of GDP to government revenue in exchange for a 7.5 percent decline in GDP. That seems like a substantial penalty to pay for a meager increase in government revenue. Looked at another way, with federal revenue at about 18.5 percent of GDP and state and local revenue adding another 13.8 percent, total government tax revenue would be about 32.3 percent of GDP. Without a VAT, table 11 estimates 2030 GDP at $27.6 trillion, so tax revenue would be 32.3 percent of that, or $8,915 billion. A 3 percent VAT would, on net, add $91 billion to that, increasing tax revenue by 1 percent. A 7 percent VAT would add $264 billion, or 3 percent, to total tax revenue. Are the GDP losses that would be incurred with a VAT worth adding 1–3 percent to tax revenue? This seems to be an excessive price to pay for a small gain in revenue.

The erosion of state and local tax revenue is another factor to consider, independently of the VAT's effect

on total tax collections. The federal government is implementing health care reforms that will put increasing financial burdens on the states, and adding a federal VAT would make it that much more difficult for states to raise revenue to pay those costs.

The introduction of a VAT would cause government's share of GDP to grow, but mostly due to the lower level of GDP, not an increase in tax revenue, as table 12 shows. While higher VAT rates might seem unlikely upon the introduction of a VAT, table 5 showed that most countries that introduced a VAT raised the VAT rate substantially after its introduction. If the VAT rate went to 7 percent—which still would be among the lowest VAT rates in the world—net tax revenue would increase by $264 billion, which is 1.1 percent of projected GDP; meanwhile, GDP would be 7.5 percent lower as a result of the VAT's introduction.

Of course, these numbers are estimated and approximate, so one would not want to put too much stock in what they show to the last dollar. But the estimates are based on empirical studies about the actual effects of taxes and government spending on the economy, so there is good reason to think they are in the ballpark. What they show is that if a VAT were imposed this year, it would produce only a modest gain in tax revenue but a substantial reduction in GDP—in the neighborhood of a 3.7 percent reduction for a 3 percent VAT rate projecting out 20 years, and more than a 7.5 percent GDP reduction for a 7 percent VAT rate.

Are these results implausible, alarmist, or exaggerated? Look back at table 9, which shows the historical GDP growth rate in the United States to be about a percentage point higher than in the eurozone, where all countries use a VAT. Now look back at the projected growth rates in table 10 that were used for these GDP projections. Even the projected U.S. growth rate for a 10 percent VAT is significantly higher than the actual eurozone growth rate in table 9. All of these projections still assume a higher future growth rate for the United States than the actual growth rate the EU has historically experienced.

The results seem eminently reasonable, well within the range of the experience of countries that have a VAT, and show the effect that even small changes in economic growth have over a period of decades. To ensure a prosperous future, we need to adopt economic policies that are growth friendly, and the VAT does not qualify.

14   ALTERNATIVES TO THE VAT

ONE REASON FOR a renewed interest in a VAT in 2010 is the projection of huge federal budget deficits as far out as projections have been made. The budget projections are cause for alarm, beyond a doubt, and the VAT will be one of the options examined to plug that deficit hole by generating more revenue. One thing this analysis has shown is that the VAT is capable of generating additional revenue in the short run. However, the revenue it generates is not substantial in the long run when one considers the effect a VAT would have on revenue from other tax bases. This analysis has also shown the VAT to be undesirable in a number of dimensions, including the substantial cost it would place on the U.S. economy. In light of the huge impending deficits, what alternatives are available?

One cost a VAT would impose is the negative impact of the increase in tax revenue and the resulting growth in the size of the federal government. One can argue about the merits of proposed spending programs—and the existing programs that will take an increasing share of GDP—but no matter how one analyzes the merits of the expenditures, an unavoidable cost of this projected course would be lower economic growth, resulting in lower future incomes. An obvious effect of lower growth would be a lower standard of living for Americans than could have been achieved with a smaller public sector. Less obvious is the loss of influence around the world that would come with such a burden. The United States is a "superpower" today because it has sufficient resources to take care of its domestic challenges and

has enough left over to extend diplomatic and military clout throughout the world. Even for those who view the United States as excessively involved in world affairs, a weaker economy would give the United States less presence in the world marketplace, which would affect its ability to influence trade agreements, foreign tariffs, and other economic issues worldwide. The best alternative to a VAT is controlling the size of the federal government so that the government does not need the VAT as a revenue source.

For those who want to fund a larger government, given the structure of the U.S. tax system, a VAT is a costly way to do it. A better alternative would be to use the income tax to raise revenue. Higher income taxes at the top end are likely to be counterproductive because high-income taxpayers can avoid higher tax bills through a creative use of the tax code. Those creative uses not only limit the amount of revenue that can be raised, but also send money to tax shelters that lower the productivity of the economy. Meanwhile, the bottom 50 percent of taxpayers pay only 3 percent of total income taxes, and in 2008 more than 36 percent of all tax returns filed resulted in no tax liability at all.[52] One problem with such a tax structure is that with a majority of voters paying little or no income taxes, they can vote for higher government expenditures without incurring the cost. When additional government expenditures appear to be almost free for a majority of voters in a democracy, political support for bigger government grows. Also, going back to the lessons on the excess burden of taxation illustrated in the appendix, when people pay little in taxes, their tax rates can be raised without incurring much of an excess burden.

The VAT is a part of a larger discussion about whether Americans want a larger government sector, and if so, how the larger government sector will be financed. The best option is to reduce government spending so additional taxes would not be necessary. But if our policy makers do consider tax increases, the least-destructive way of increasing revenue would be to restructure the income tax so that those in the bottom half of the income distribution would begin paying taxes in proportion to the incomes they earn. This would give all Americans—not just high-income Americans—a financial stake in the proposed increases in government's share of the economy, and it would minimize the excess burden of any tax increases.[53]

<table>
<tr><td>15</td><td>## WHAT TYPE OF ECONOMIC SYSTEM DO WE WANT?</td></tr>
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THE IDEA OF using a VAT to enhance federal revenue is alluring for those who would like bigger government, but the bottom line is that, ultimately, a VAT would not produce a bigger government; it would produce a smaller private sector. Government spending as a share of GDP would go up, but only because the private sector would shrink, not because government would be larger. Table 13 lists GDP per capita, government expenditures per capita, and government spending as a percentage of GDP to make an international comparison. Looking at GDP per capita, the United States sits well above any of the other countries on the list. Meanwhile, Sweden tops the list both for government expenditures per capita and government spending as a share of GDP. But while Sweden's government spends over half of GDP, its government spending per person is only 12.6 percent higher than in the United States. In France, where government spending is more than half of GDP, government spending per person is about the same as in the United States, and Germany's govern-

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52. "Tax Fairness Reaches a Tipping Point," *Investors Business Daily*, March 16, 2010.

53. Lower-income taxpayers already face high marginal tax rates because of phaseouts in programs such as the earned income tax credit. If programs like these were eliminated, the excess burden of taxation would go down, and tax revenue would rise. In this rare case, a tax increase would reduce the excess burden of taxation and increase economic efficiency. While eliminating a program like the earned income tax credit would mean lower-income taxpayers would pay more, examining such alternatives would seem a reasonable way to address looming deficits intended to finance programs that give taxpayers more.

ment spends less per person than the United States, despite having government spending as a share of GDP well above U.S. levels.

TABLE 13: GDP, GOVERNMENT SPENDING, AND GOVERNMENT'S SHARE OF THE ECONOMY, VARIOUS GOVERNMENTS, 2009

COUNTRY	GDP PER CAPITA	GOVT. EXP. PER CAPITA	GOVT. AS % OF GDP
Sweden	$37,467	$19,670	52.5%
France	$33,871	$17,714	52.3%
United States	$46,695	$17,464	37.4%
United Kingdom	$35,831	$15,765	44.0%
Germany	$35,323	$15,612	44.2%
Canada	$36,036	$14,090	39.1%

Source: Data from the Heritage Foundation, "Ranking the Countries," 2010 Index of Economic Freedom, http://www.heritage.org/index/Ranking.aspx. GDP per capita was calculated from the GDP and population data, Govt. as % of GDP is from the index, and Govt. Exp. Per Capita is calculated by multiplying GDP Per Capita by Govt. as % of GDP.

The figures in table 13 illustrate that enlarging government's share of GDP will not necessarily allow government to spend more per person because of the negative effects taxation has on the economy. Of course, we cannot attribute all of the differences in table 13 to the VAT. The table's purpose is to show that the effects of introducing a VAT into the United States as calculated earlier are well within the realm of possibility and that looking at countries that use the VAT today, these projections are in line with saying that by adopting tax policies like those countries in the table, we are setting ourselves up for having an economy that performs like theirs in the future. Government will not have the resources to spend more, because the private-sector productivity from which all government tax revenue must come will be reduced.

It seems almost surreal that we would be considering fundamental changes to our system of taxation and scope of government that would make our country more like France. With income in the United States so much higher than in those countries that use a VAT—and with government expenditures as high also—it would appear that the countries using the VAT should be trying to adjust their policies to become more like the United States, rather than the other way around.

16   CONCLUSION

WITH THE FEDERAL budget deficit now projected to remain in the neighborhood of $1 trillion as far out as it is projected, policy makers are considering the VAT as an option for closing at least some of that gap. Indeed, projected deficits are alarming, and it is sobering to note that ten years out, the deficit is projected to be increasing. It is reasonable to look at all the options, including a VAT, but an analysis of a VAT shows that for many reasons, it would not be wise to add a VAT to the nation's current tax structure. As economic commentator Robert J. Samuelson said in *Newsweek*, "Almost every pro-VAT argument is exaggerated, misleading, incomplete, or wrong."[54]

Looking at a VAT as a revenue enhancer for the United States is not a new issue. Bruce K. Maclaury, then-president of the Brookings Institution, noted, "Among the hardy perennials of American economics is the question of whether the United States should adopt a value-added tax. At least since the 1960s scattered organizations and elected officials have urged that the United States take the trail blazed by France and later followed by other countries of Europe and elsewhere and adopt this new form of taxation."[55] Rand Corporation economist J. A. Stockfish, in a comment made 25 years ago that applies directly today, says, "Large government deficits raise the question of whether new taxes should

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54. Robert J. Samuelson, "The VAT Masquerade: Why It's Not a Panacea for Deficits," *Newsweek*, April 26, 2010, 22.
55. Bruce K. Maclaury, "Foreword," in *The Value-Added Tax*, ed. Aaron, vii.

be introduced. A value-added tax (VAT) is one candidate."[56] Again, in a comment that seems as relevant today as when it was first made, Hakken says, "The most immediate use for a VAT would be to finance part of the cost of health care reform."[57] Economists and policy makers have long seen the VAT as a vehicle by which they could finance larger government expenditures. But, as Aaron notes, "The most important lesson that Americans can learn from European experience with the value-added tax is how different the circumstances under which the six European nations made their decisions were from those in the United States."[58]

Aaron notes that, first, many countries adopted a VAT to replace turnover taxes, which are notoriously inefficient. That is not relevant to the United States. Second, those countries adopted the VAT as a mechanism to harmonize their tax structures, which is not relevant to the United States. Third, the European countries that adopted the VAT have much more centralized governments than the United States, which is especially problematic considering that the VAT base would attack the sales-tax base now heavily used by the states. Fourth, EU countries intended the VAT as a substitute for other taxes in Europe, whereas both now and when Aaron wrote, Americans are proposing a VAT as a revenue enhancer. Aaron goes on to note that the VAT was not, in fact, revenue neutral, but was "a handy instrument at a time when government expenditures were rising."[59]

Proponents of big government have seen the VAT as a potential revenue source for financing government growth for half a century, so the contemporary discussion of the VAT is the resurfacing of a long-running debate. But, as Aaron notes, the justifications for adopting a VAT in the EU do not apply to the United States, and indeed, this study has shown

how undesirable that option is. Nevertheless, one might wonder whether Hakken was very farsighted when he said, "Numerous policymakers believe that the VAT's arrival in the United States is inevitable."[60]

The drawbacks of the VAT begin with its complexity, which imposes substantial administrative and compliance costs on taxpayers and the government. The analysis in this study presented a simple comparison between the relative simplicity of a retail sales tax—that taxes the same tax base—with a VAT. In reality, as the discussion following that simple example showed, the VAT is far more complex to compute, to comply with, and to enforce. Given the substantial administrative and compliance costs a VAT brings with it, Tait concludes, "Given the likely complexity of changing to a VAT, the costs can only be justified if the VAT is a major revenue source, and this suggests a standard rate of 10 percent and above."[61] Rates that high are not (yet) a part of the contemporary discussion, but at lower rates the costs the tax would-impose are substantial compared to the revenue it would raise. The welfare cost of a VAT—the cost of the tax over and above the revenue collected—would be about $100 billion at a tax rate of 3 percent.

Unlike EU countries, where the VAT is the largest single source of tax revenue, the states of the United States already tax the VAT base with their sales taxes. Unless the federal government and the states coordinate tax rates, one result of the overlapping tax bases is that governments will raise rates to inefficiently high levels. Coordination of tax policies raises additional issues, however, as it would erode the powers of the states relative to the federal government. Another problem with adding taxes to the state sales-tax base is that state sales-tax collections will fall. The VAT has a reputation as a revenue generator, which is an asset in the eyes of those who want to finance

56. J. A. Stockfish, "Value-Added Taxes and the Size of Government: Some Evidence," *National Tax Journal* 38, no. 4 (December 1985): 547.

57. Hakken, "Has the Time Come for a VAT in the U.S.?" 92.

58. Aaron, ed., *The Value-Added Tax*, 15.

59. Ibid., 15–16.

60. Hakken, "Has the Time Come for a VAT in the U.S.?" 92.

61. Tait, *Value Added Tax*, 402.

larger government but a liability for those who support more limited government. VAT revenue certainly means that government's share of GDP would grow. Government would not grow as much, however. The growth in the government-to-GDP ratio would come largely because GDP would fall, rather than because total government revenue would rise. Recall that the level of government spending per capita is about the same in the United States as it is in France. Meanwhile, the introduction of a federal VAT would hurt state government finances.

The welfare costs of a VAT are substantial, and looking long term, its potential to generate revenue is limited by the negative effects it would have on economic growth. Projections show that adding a VAT of 3 percent to the current tax structure would reduce 2020 GDP to 2.1 percent below what it would be without the VAT. Meanwhile, total tax revenue would increase by 1.1 percent of GDP. Is it worthwhile to reduce GDP by 2.1 percent to allow government to take another 1.1 percent in taxes? The cost in terms of lost GDP would be about double the revenue raised. Because of the slower economic growth, by 2030, a VAT at any rate would raise little revenue because the reduced revenue from other sources due to slower economic growth would approximately offset the amount collected by a VAT. A VAT of 3 percent in 2030 would increase total tax revenue by 0.35 percent of GDP, but would reduce GDP by 3.7 percent. The GDP loss would be 11 times as great as the revenue raised. A VAT of 7 percent in 2030 would increase total tax revenue by 1.1 percent of GDP, but would lower GDP by 7.5 percent.

The introduction of a VAT would immediately inject tax revenue into the Treasury, but at a substantial cost to the economy that will slow economic growth. That substantial tax revenue increase would slow to a trickle in ten years, and by 2030, the negative effects of the costs imposed on the economy would be overwhelmingly larger than the revenue it would raise. Despite its short-run appeal, the VAT is not a viable long-run solution to the huge projected federal government deficits. If the growth effects of a VAT posited here seem implausible, remember that the slower economic growth this study projects for the United States is higher than the actual rate of economic growth in the EU. It is not implausible to think that if the United States adopts a tax structure like the EU's, economic growth in the United States will also be similar to that in the EU. Looking just two decades ahead, a VAT would add almost nothing to tax revenue; it would just make Americans poorer.

## APPENDIX: CALCULATING THE EXCESS BURDEN OF A VALUE ADDED TAX

FIGURE A1 SHOWS the effect of adding a VAT to the existing sales-tax structure. It uses a supply and demand framework to show the marginal excess burden of a tax. With no tax in this market, the price will be P* and the quantity exchanged will be Q*. Now assume that a VAT with rate T is placed on this market. That shifts the supply curve up to S + 2T. The amount of tax collected is the rate per unit, T, times the number of units taxed, which is Q'. In Figure A1 the distance between P* and P* + T is T, so, recalling that the area of a rectangle is base times height, the amount of tax collected is represented by the areas B + T in the diagram.

Without the tax, quantity Q of this good would have been sold, but the tax discourages purchasers, so Q' is produced. At that quantity, the demand curve (which measures the value of the good to consumers) is above the supply curve (which measures the opportunity cost of producing the good), so the tax causes an excess burden of the difference between the value of the good and the cost of supplying it, which is the difference between demand and supply, equal to the triangular area A in figure A1. So, with a tax rate T, the tax collected is T + B and the excess burden, or welfare cost, of the tax is A.

Now assume tax rate T is already in place and the government wants to add another tax of the same amount, which will raise the tax rate to 2T. The supply curve shifts up to S + 2T. The quantity of output falls to Q", the amount of tax collected is now T + U, and the excess burden of the tax is now A + B + C. The amount of tax collected is less than twice as much as before—tax revenue increases by U–B—but the excess burden of A + B + C is four times as large as the excess burden A (assuming for simplicity that both supply and demand are straight lines).

This graphical example shows the economic effects of placing a VAT on goods that are already taxed under a sales tax, because both are consumption taxes. Revenue from the VAT will be lower, and the excess burden of the tax placed on the economy will be higher. One might, for example, propose a modest VAT rate, like 3 percent. When placed on top of a sales-tax rate of 10 percent, for example, the negative economic effects would be the same as raising a 10 percent VAT to 13 percent. A VAT of any given rate will place a much bigger drag on the U.S. economy than the same rate in an EU country, because in the United States, that rate would be piggybacked on top of a sales tax that already taxes that tax base, whereas in the EU the VAT replaced other transaction-based taxes.

FIGURE A1: THE MARGINAL EXCESS BURDEN OF A TAX
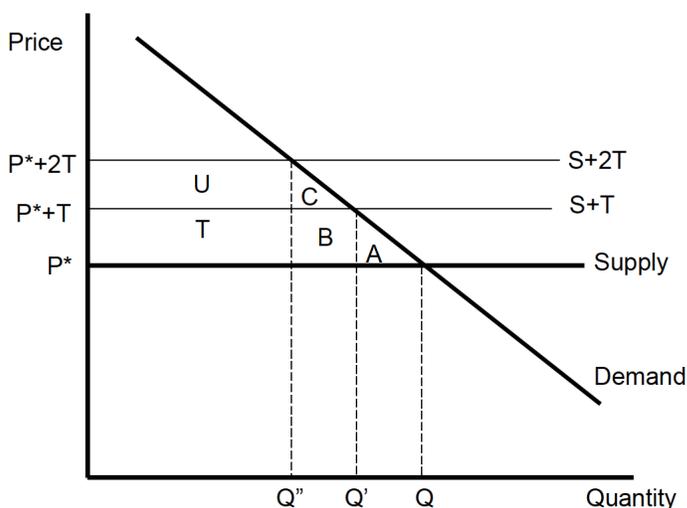
Compare the imposition of a VAT both with and without a preexisting sales tax, within the context of figure A1. Assume the VAT rate and the sales-tax rate are the same, and note that area T in the figure equals area U. Without a sales tax, a VAT would collect revenue T + B, but on top of an existing sales tax, it would collect additional revenue T–B, where B is the loss of sales-tax revenue due to the introduction of the VAT. Without a sales tax, the excess burden of the VAT is A; with an existing sales tax, the excess burden is A + B + C. Table A1 summarizes this revenue and excess-burden comparison. Imposing a VAT in the United States would be more costly than the VAT used in EU countries

and would raise less revenue, because it would be piggybacked on top of the existing state sales-tax structure that already taxes that tax base.

TABLE A1: A COMPARISON OF VALUE ADDED TAX REVENUE AND EXCESS BURDEN

	REVENUE	EXCESS BURDEN
Without a Sales Tax	T + B	A
With a Sales Tax	T−B	A + B + C

Source: Author's calculations.

Another issue with regard to the VAT base overlapping the sales-tax base is that when two governments tax the same tax base, they tend to raise rates inefficiently high. As explained by academic economists Marilyn Flowers and Russell S. Sobel, when looking at the welfare cost of taxation, each government views the tax levied by other governments as given and beyond their control, so in setting their tax rates, they do not consider the excess burden they are placing on other governments.[62] Figure A1 illustrates this point. If one government already levies tax rate T in this market, and another government imposes the same tax rate to make the total tax rate 2T, the second government can raise revenue equal to area U by imposing the tax, but does not have the incentive to consider that by doing so, revenue to the first government will fall by area B. For example, in the current discussion of the VAT, there is little if any discussion of the fact that introducing a VAT will reduce state sales-tax collections.

To get an idea of the magnitude of the excess burden of a VAT piggybacked on state sales taxes, start with the U.S. median sales-tax rate of 5.75 percent.[63] Doing a rough calculation assuming a unitary elasticity of demand for taxed goods,[64] the excess burden of the tax is equal to about 0.33 percent of taxed consumption.[65] Now assume a 3 percent VAT adds to that sales tax to bring the sales tax plus VAT rate up to 8.75 percent. The excess burden rises to 0.77 percent of taxed consumption, and the marginal excess burden is 0.44 percent. The marginal excess burden of a 3 percent VAT is higher than the excess burden of a 5.75 percent sales tax without a VAT. If the VAT rate is 5 percent, the excess burden rises to 1.16 percent of taxed consumption, and the marginal excess burden is 0.83 percent.

A 5 percent VAT rate by itself would have an excess burden of only 0.25 percent of taxed consumption, so tacking a 5 percent VAT onto the existing sales tax produces an excess burden 4.6 times higher than if the 5 percent VAT were applied in the absence of a sales tax. A 3 percent VAT by itself would have an excess burden of only 0.09 percent of taxed consumption, so the excess burden of a 3 percent VAT would be 8.6 times as high if piggybacked on top of the current sales tax as it would be if levied by itself.

62. Marilyn Flowers, "Shared Tax Sources in a Leviathan Model of Federalism," *Public Finance Quarterly* 16 (1988): 67–77; and Russell S. Sobel, "Optimal Taxation in a Federal System of Governments," *Southern Economic Journal* 64, no. 2 (October 1997): 468–85.
63. This rate is for January 1, 2010, from the Federation of Tax Administrators, *State Sales Tax Rates and Vendor Discounts*, http://www.tax-admin.org/fta/rate/vendors.pdf.
64. Unitary elasticity of demand means that the percentage decrease in the quantity demanded equals the percentage increase in the price. If all goods increased in price by the same percentage, and income (expenditure) remained the same, the percentage decrease in quantity would have to equal the percentage increase in price, so the assumption of unitary elasticity is reasonable when looking at a large group of consumption goods.
65. This is an approximate calculation. With P * Q remaining the same before and after the tax with unitary elastic demand, the excess burden of the tax is (0.0575P * 0.0575Q) / (P * Q), which equals .0033, or 0.33 percent.

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