A VAT Primer for Lawyers, Economists, and Accountants

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I. Introduction

The United States is the only major country in the world without a value added tax — the consumption tax of choice of some 150 other countries. All countries that are members of the OECD have a VAT, including the partners of the United States in the North American Free Trade Agreement — Canada and Mexico. In the European Union, which comprises 27 member states, the adoption of the VAT is a prerequisite for membership because it is uniquely equipped to tax imports on par with domestically produced goods and services and to free exports from tax. The United States will have to consider the adoption of a VAT if the federal budget deficit is to be reduced, or, more specifically, if adequate financing is to be provided for the provision of universal healthcare, a key element of President Obama's social-economic program.[1]

This article examines the nature and workings of the VAT by comparing it with other broad-based consumption taxes. The article contains four sections. Following this introduction, the second section discusses the different forms of consumption tax. In theory the base of the various consumption taxes is the same;

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[1] Early on, Charles McLure (1987), an influential scholar, advocated the adoption of the VAT to reduce the federal budget deficit. For a health VAT, see the imaginative proposal by Burman (2009).

hence, their economic impact and revenue yield should not differ. In practice, however, open economy aspects and feasibility constraints imply that there are important differences among them. The VAT emerges as the preferred choice, primarily because it is the most neutral and feasible alternative. The VAT does not affect the forms and methods of doing business or, more broadly, trade and investment, and does not discriminate between domestically produced and foreign-made products. Importantly, the VAT is not a cost to business.

These observations form the background for a discussion in the third section of how the tax is perceived by lawyers, economists, and accountants. Lawyers emphasize that the VAT is a tax on transactions — sales and purchases — made by registered businesses. This requires clear definitions of who should be taxed, on what, where, when, and to what extent. In short, unambiguous legislation is essential if the VAT is to be effectively implemented. Economists argue that the VAT is a tax on labor income and the business cash flow component of capital income. Unlike the income tax, the VAT does not include the normal or hurdle rate of return on capital in its base; that is, at the margin it does not interfere with investment. As accountants show, consumption taxes can be best understood by working through the intricacies of a profit and loss (P&L) account in determining the tax bases and liabilities. It appears there is much to learn from the insights provided by the views of the various professions.

The fourth section sums up the three major lessons learned from worldwide experience, which the United States should heed if it decides to adopt the VAT. It is important that the VAT be as broadly based as possible and that a single rate apply to all transactions. Only exports should be freed of tax.

Note that this article is a primer on VAT, not a detailed treatment of all its legal aspects, economic effects, or political implications. Readers whose appetite has been whetted should refer to Ebrill et al. (2001); Schenk and Oldman (2007); Bird and Gendron (2007); Crawford, Keen, and Smith (2010); and the many references cited in these publications.

II. Broad-Based Consumption Taxes

Much can be learned about the VAT by comparing it with other broad-based consumption taxes. Therefore, this section defines the various forms of consumption tax that can be distinguished. This is followed by an exposition of the computation of the tax base of each consumption tax, highlighting its equivalence with other consumption taxes. Subsequently, the practical and economic differences between the various taxes are noted. The VAT emerges as the consumption tax of choice, a view that finds support in the VAT's prevalence around the world.

A. Forms of Consumption Tax

The nature of the VAT can be best understood by comparing it to the following broad-based consumption taxes, which are levied or have been proposed in the United States, the EU, or in the tax literature:

- A retail sales tax (RST) that is applied to sales of goods and services by registered businesses to consumers and unregistered entities.
- A credit-invoice method of VAT that taxes all sales by registered businesses but permits these businesses a credit (deduction) for the tax on purchases (including investment goods) invoiced by other registered businesses against the tax on sales.
- A direct subtraction method tax (also called business transfer tax (BTT) in the United States) that permits registered businesses to deduct purchases (including investment goods) from other registered businesses from sales and that taxes the difference between sales and purchases directly rather than indirectly as under the VAT.[2]
- An addition method tax that taxes aggregate wages as well as residual value added by registered businesses as computed from their P&L accounts.
- A flat tax, much discussed in U.S. tax literature, that allows registered businesses to deduct wages from value added as

[2] In this article, the acronym VAT is reserved for the credit-invoice method of consumption tax, although, in principle, the direct subtraction method tax, the addition method tax, and the flat tax also can be considered variants of value added taxation.

calculated under the direct subtraction method, but that taxes these wages at the level of individual wage earners (permitting a basic exemption). Residual value added is taxed at the business level, without an exemption — hence the name "flat tax."

- A personal expenditure tax that taxes expenditures on goods and services at the level of the taxpaying individual by subtracting savings (including loan repayments and purchases of stocks, bonds, and nonresidential real estate) from aggregate incomings (including loan receipts and proceeds from the sale of assets), both calculated on a cash flow basis.

B. Equivalence of Consumption Taxes

The equivalence of the various consumption taxes can be illustrated best by reference to the stylized example in Table 1, which traces the manufacture and sale of the desk at which the first draft of this article was written.[3] Following the production and distribution cycle, we start with the lumber company P (the primary producer), who sells wood to the furniture manufacturer M, who delivers the desk to the wholesaler W, who distributes it to the furniture store R (the retailer), who in turn puts the desk at our disposal. For simplicity, it is assumed that each stage purchases the whole output of the previous stage and that P has zero inputs.

In each stage, the value of the inputs increases by the value of labor (wages) and capital (to be defined below) applied in the production or distribution of the desk. In terms of the example: A.2 + A.3 = A.1, which can also be written as: A.3 = A.1 - A.2. In other words, value added is identical to the difference between sales and purchases. Consequently, at the final (retail) stage, the sum of all values added throughout the production distribution process, and, by the same token, the sum of all the differences between sales and purchases (in either case, $2,000 in the example), equals the consumer price, exclusive of tax.

The example incorporates a number of accounting identities, which are worth repeating because they are fundamental to a

[3]The example is based on Cnossen (1998).

Table 1. Tax Liabilities Under Various Forms of Consumption Tax Levied at a Rate of 10 Percent (in US $)

Basic Information/Kind of Tax	P	M	W	R	Total
A. Transactions (exclusive of tax)					
1. Sales	400	1,200	1,400	2,000	-
2. Purchases	0	400	1,200	1,400	-
3. Value added (A.1 - A.2)	400	800	200	600	-
a. Wages	(380)	(750)	(190)	(560)	-
b. Capital income	(20)	(50)	(10)	(40)	-
B. Retail sales tax					
4. Tax on retail sales (10% of A.1/R)	-	-	-	200	**200**
C. VAT					
5. Tax on sales (10% of A.1)	40	120	140	200	500
6. Tax on purchases (10% of A.2)	0	40	120	140	300
7. Net tax (C.5 - C.6)	40	80	20	60	**200**
D. Direct subtraction method tax					
8. Tax on sales minus purchases (10% of A.3)	40	80	20	60	**200**
E. Addition method tax					
9. Tax on aggregate wages (10% of A.3.a)	38	75	19	56	188
10. Tax on capital income (10% of A.3.b)	2	5	1	4	12
11. Total tax	40	80	20	60	**200**
F. Flat tax					
12. Tax on individual wages (10% of A.3.a)[a]	38	75	19	56	188
13. Tax on capital income (10% of A.3.b)	2	5	1	4	12
14. Total tax	40	80	20	60	**200**

[a]Ignoring the basic exemption applied at the individual level.
Source: Adapted from McLure (1989).

good understanding of the VAT. Thus, the consumer price is always equal to the algebraic sum of all values added, is always equal to the sum of the differences between sales and purchases, and is always equal to the sum of wage payments and capital income. If this is borne in mind, it will readily be apparent that exactly the same total tax can be collected in either of two ways:

- In full under a retail sales tax.
- Fractionally throughout the production-distribution process by confining the tax to the value added at each stage. In turn, the fractional or multistage collection technique can be implemented in either of four ways:
  - indirectly by crediting the tax on purchases against the tax on sales under the indirect subtraction technique, called credit-invoice VAT;

- directly by subtracting purchases from sales and applying the tax rate to the difference under the direct subtraction method;
- directly by taxing aggregate labor income and capital income jointly at the business level under the addition method; or
- directly by taxing labor income and capital income separately at the individual and business level, respectively, under what is called the flat tax.

Table 1 illustrates these accounting identities. Under the basic assumption that the tax base and tax rate are identical, the total net tax collected under a retail stage tax (that is, \$200, line B.4) equals the tax collected throughout the production-distribution process under the VAT (C.7), which equals the tax under the direct subtraction method tax (D.8), which equals the tax under the addition method tax (E.11), which, finally, equals the tax collected under a flat tax (F.14).

The computation of the tax liability under the personal expenditure tax is not shown in Table 1 because it is not derived from P&L accounts but from aggregate recordings of incomings and outgoings (savings) by individuals. Nevertheless, given the same base and rate, the tax liability under the personal expenditure tax should be the same as under the other consumption taxes.

C. Differences Between Consumption Taxes

Although in theory all consumption taxes are economically equivalent, in practice various important differences arise between them. Design and feasibility constraints, and open economy aspects have important implications for achieving basic, if sometimes conflicting, tax objectives, such as:

- fairness in the tax burden distribution;
- neutrality regarding producer and consumer choices;
- tax revenue allocation to the country of consumption (destination principle);
- minimization of administration and compliance costs; and
- restraining the ability of special interest groups to tinker with the tax base and rate (political robustness).

Each of these implications is examined briefly below.

1**. Fairness.** The RST, VAT, direct subtraction method tax, and the addition method tax are *in rem* taxes collected at the business level, without regard to the personal circumstances of individual consumers who are assumed to bear the tax. In this context, fairness simply means that all goods and services should be taxed alike. The flat tax and, especially, the personal expenditure tax, on the other hand, are *in personam* taxes, primarily collected at the individual level and hence equipped to incorporate basic allowances and graduated rates to achieve vertical equity goals. In fact, the personal expenditure tax, just like the income tax, can be levied fully in accordance with the ability-to-pay principle.

2. Neutrality. If consumption taxes are not to interfere with producer and consumer choices, the base should be defined as comprehensively as possible, while producer goods should not be taxed. As shown in real world experiences, this is possible under the VAT, but the RST has difficulty reaching services performed by small establishments (there is no tax on purchases that can be linked to the tax on sales) and in freeing dual-use goods (which can be used for business as well as personal purposes) from tax. Under the VAT, a tax credit will not be permitted unless the taxpayer proves to the satisfaction of the tax authorities that the dual-use goods have been applied for business purposes.[4]

There is no widespread experience with the design and administration of other *in rem* consumption taxes, but since they are accounts-based rather than transaction-based, in practice equal treatment of all goods and services may be more difficult to achieve than under the VAT.

Presumably, the flat tax and the personal expenditure tax should be judged primarily because of their effects on the work-leisure choice and the intertemporal consumption choice. All consumption taxes are neutral regarding the choice between present and future consumption, but they discriminate in favor

[4]This favors the VAT on the plausible assumption that a taxpayer is less likely to cheat the tax authorities under the VAT than his suppliers under the RST. Under the RST, moreover, a taxpayer has an incentive to treat his customer no less favorably (by refusing the exemption) than his competitor might do. For a thorough comparison of VAT and RST, see Cnossen (1987 and 2002).

of leisure, which cannot be taxed. By contrast, an income tax distorts both the work-leisure choice and the intertemporal consumption choice. However, since the base of the income tax is broader than the base of a consumption tax, the rate of an income tax can be set at a relatively lower level to yield the same amount of revenue. This lower rate should mitigate distortions whose size tends to increase with the square of the tax rate. Accordingly, it is an empirical question whether an income tax or a consumption tax is, on balance, more distortionary.

3. Destination principle. In an open economy, the revenue of the RST, VAT, and the direct subtraction method tax is allocated to the country of consumption by applying appropriate border tax adjustments (BTAs). Exports are freed of tax, and imports are taxed on par with domestically produced goods. In practice, the VAT is better equipped to apply correct BTAs than either the RST or the direct subtraction method tax. The difficulty of freeing dual-use goods from tax under the RST means that the tax enters into export prices, while imports (whose price does not include any tax on dual-use goods) tend to be undertaxed compared with similar domestically produced goods. Under the direct subtraction method tax or BTT, furthermore, there is no presumptively correct documentary evidence (such as VAT invoices) of tax paid in previous stages of production and distribution, which hampers the application of unambiguous BTAs.[5]

In contrast, the addition method tax, the flat tax, and the personal expenditure tax would be levied on an origin basis (exports taxed, imports free of tax) or a source basis, to use income tax terminology. Generally, this means the primary impact of the tax is on producers, because consumers can buy goods at world prices without tax. In economics literature, origin taxation is more likely to violate production efficiency than destination taxation (Diamond and Mirrlees, 1971).[6] The taxation of exports, moreover, would invite

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[5]This feature might invite objections from the trading partners of the United States, who would argue that the BTT is not a tax on products per se but rather an accounts-based tax on value added comparable to the business income tax, and hence not eligible for export rebate under the rules of the WTO.

[6]*See* the lucid exposition in Crawford, Keen, and Smith (2010). These authors point out that under the equivalence theorem, it is asserted that it does not matter for trade

(Footnote continued on next page.)

transfer pricing issues similar to those that bedevil the corporation tax under an arm's-length separate accounting system.

4. Administration and compliance costs. Compliance and tax administration costs should be largely the same under the VAT, the RST, and the direct subtraction method tax, but these costs would probably be greater under the flat tax and the personal expenditure tax, which are mainly collected at the level of individuals. Presumably, the RST, the direct subtraction method tax, and the addition method tax are more vulnerable to evasion than the VAT. Administratively, the retail level tends to be the weakest link in the production-distribution chain. The accounts-based nature of the direct subtraction method tax and the addition method tax also implies that the tax is not shown on invoices. Hence, there is less of an audit trail than under the VAT. Also, sellers and buyers do not have opposing interests in the amount of tax that is being charged. The personal expenditure tax probably is the most complicated consumption tax because it requires the registration and monitoring of wealth.

5. Political robustness. Politically, the VAT is the most robust consumption tax, primarily because preretail firms do not benefit from exemptions that make it impossible for them to pass the tax of their suppliers on to customers. By contrast, the subtraction method tax, the flat tax, and the personal expenditure tax, and to a lesser extent the RST, are vulnerable to erosion through political favoritism. Under the BTT, it would be tempting to exempt some "worthy" product, sector, or activity. The flat tax and the personal expenditure tax would be susceptible to the same politically motivated concessions as the individual income tax.

D. VAT: The Preferred Choice

The VAT emerges as the consumption tax of choice. A well-designed VAT does not distort trade and investment and is highly successful in applying appropriate BTAs. This neutrality feature is important for the proper functioning of free trade areas,

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and investment whether goods and services are taxed on a destination or an origin basis. Since imports are exchanged for exports, a tax on exports is equivalent to a tax on imports. In practice, however, the conditions for the equivalence theorem to hold are so restrictive that it is of little value for policy purposes.

such as NAFTA, which do not permit discriminatory taxes on imports or subsidies on exports. Beyond that, the VAT is a productive, stable, and flexible source of government revenue. Since a VAT is collected on a current basis, say, monthly, its revenue generating capacity is not affected by inflation and the effect of rate changes on revenue is immediately visible. While the VAT scores high on neutrality and feasibility grounds, as an *in rem* tax it cannot be levied on an ability-to-pay basis, but this should be acceptable if adjustments to the income tax and social benefit schemes can be made.

The VAT's neutrality deserves to be emphasized. For this purpose, the basic transactions, shown in Table 1, are replicated in Table 2a. Value added — the difference between sales and purchases — is not shown, simply because businesses, unlike authors of textbooks, do not compute it. In practice, for any business, the VAT is shown on the invoices that it issues to its registered buyers and that it receives from its registered suppliers, while VAT payments to suppliers and by buyers are made accordingly, as shown in Table 2b. Generally, the VAT on all purchases made for the purpose of the business is immediately creditable against the tax on (unrelated) sales, or, if there are no sales, any excess credit is eligible for refund without undue delay.[7] Consequently, no VAT is collected by the government on transactions between registered businesses.

But if no net tax is borne by registered businesses in relation to their own value added, why does each firm nevertheless remit some tax to the tax authorities? To understand this apparent paradox, look upstream at financial flows rather than downstream at the flow of goods and services. The answer is then, as shown in Table 2c, that the consumer pays the full tax that is collected, again in full, by the retailer, but which is remitted to the tax authorities by all registered businesses in proportion to their share in the total value added embodied in the final product. Any net tax remitted by upstream firms is simply paid to them by

[7] In legal terms, as stated unequivocally in article 167 of the EU's Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax, a taxable business's right to a tax credit (and refund) arises *at the same time* that the supplier has to account for the tax: The date of both events is based on the same VAT invoice date.

Table 2. Workings of the VAT

a. Basic Transactions, Excluding VAT (in US $)		
Production-Distribution Chain	**Purchases**	**Sales**
Producer	0	400
Manufacturer	400	1,200
Wholesaler	1,200	1,400
Retailer	1,400	2,000
Consumer	2,000	—
b. VAT Payments to Suppliers and by Buyers (10% tax in US $)		
Production-Distribution Chain	**VAT Paid to Supplier**	**VAT Paid by Buyer**
Producer	0	40
Manufacturer	40	120
Wholesaler	120	140
Retailer	140	200
Consumer	200	—
c. Fractional Collection of VAT Paid by Consumer (in US $)		
Production-Distribution Chain	**Tax Paid to Supplier**	**Tax Paid to Government**
Consumer	200	—
Retailer	140	60
Wholesaler	120	20
Manufacturer	40	80
Producer	—	40

their successors in the production-distribution chain. The only plausible assumption that needs to be made for this to occur is that the average length of time for remitting tax and processing any net refunds is the same as the average length of time required for settling accounts receivable and accounts payable (inclusive of VAT).[8]

It is this feature that has made the VAT such a neutral tax from a business point of view. It ensures that the effective rate of tax does not depend on the forms or methods of doing business. The rate is the same (and equal to the legal rate) regardless of how

[8]To be sure, cash flow benefits (or costs) arise under VAT (as well as an RST) if a taxable business's collection date (the date at which the tax is collected from customers before being handed over to the tax authorities) does not coincide with the remittance date (the date after the collection date but before the latest day designated for handing over the tax). For a general treatment of cash flow benefits and costs, see Sandford, Godwin, and Hardwick (1989).

many stages a good passes through before it reaches the consumer or, for that matter, whether the value is added in earlier rather than later stages in the production distribution process. The VAT is also neutral between capital-intensive or labor-intensive modes of production, between the corporate and the noncorporate form of business, or between home-produced and foreign-made goods.

In sum, the timing of tax collections under the VAT is the same as under an RST. Under both taxes, net tax is collected only when taxable products leave the "ring" of registered firms and are sold to final users or consumers (or to small, unregistered firms). So why not impose the tax at retail only? Because retailers are less likely to default on the VAT invoiced to them by their suppliers than on the tax they would have had to pay in full to the tax authorities if, instead, an equivalent RST had been imposed. This feature makes the VAT particularly robust from a tax collection point of view that is reinforced by requiring sellers to state the VAT on invoices. This facilitates the correct and expeditious application of BTAs (the VAT shown on the exporter's purchase invoices is simply refunded) and compliance control (cross-checking). In other words, the tax leaves a clear audit trail. The invoice method also facilitates the calculation of the tax liability: The tax shown on all purchase invoices is simply summed and subtracted from the tax shown on all sales invoices.

E. Prevalence of Consumption Taxes

Not surprisingly, the VAT is the most prevalent form of consumption tax in the world. Some 150 countries have adopted it, although in practice differences can be large. Viewed globally, the advance of the VAT is the most significant development in the field of taxation in the past 50 years. The march of VAT started in the 1960s in the EU (where the introduction of the harmonized VAT is a nonnegotiable condition for membership) and South America, and ended in the 1990s in Central and Eastern Europe and the countries that are now members of the Commonwealth of Independent States (CIS, the republics of the former Soviet Union). Australia is the latest industrialized country that has converted to VAT. India is set to introduce a dual VAT, levied separately at the state as well as the federal level. The spread of the VAT owes much to the IMF's Fiscal Affairs Department, where Michael Keen has been the intellectual driving force.

The RST is levied by 45 out of 50 U.S. states and the District of Columbia (plus some 9,000 local governments), as well as 3 out of 10 Canadian provinces.[9] The U.S. RSTs are not as broad-based and neutral as most VATs are because they exclude most services from the base and widely tax investment goods. The Nordic countries and Switzerland also used to levy an RST, but these countries switched to the VAT because it is better equipped to free producer goods of tax and easier to enforce. In the past, the RST received support (generally, as a replacement for the income tax) from Sen. Richard G. Lugar, R-Ind., former House Ways and Means Committee Chair Bill Archer, former Reps. Dan Schaefer and Billy Tauzin, and the lobbying group Americans for Fair Taxation.

The direct subtraction method tax used to be levied in Belarus, apparently with little success (Bird, 1995). Further, some CIS countries used to impose a tax-credit type of VAT through producer stages, but taxed distributors on their margins. Although this does not seem to make much sense (the difference in function between producers and distributors can hardly be made relevant for tax purposes), the explanation should be sought in the way in which businesses were taxed under the old turnover tax (Summers and Sunley, 1995). In the United States, the direct subtraction method tax has been pushed by former Rep. Sam Gibbons and the lobbying group American Council for Capital Formation. The appeal of this tax lies in its resemblance to a business tax, which may enhance its acceptability to consumers.

The flat tax has been proposed by Robert Hall and Alvin Rabushka (1985, 1995). It has received much attention in the United States because its wage component resembles a progressive income tax through the application of a basic exemption. As a result, it mitigates the regressivity of a consumption tax for

[9]The federal government in Canada levies a VAT, called the goods and services tax, as does the province of Quebec. The Atlantic provinces (New Brunswick, Newfoundland and Labrador, as well as, recently, Ontario and British Columbia) have piggybacked the federal VAT in the form of surtaxes. Oil-rich Alberta has neither an RST nor a GST.

lower-income groups. What the flat tax cannot do, of course, is to make the tax burden distribution more progressive for higher income groups who receive capital income. In the United States, legislation for a flat tax has been tabled by former House Majority Leader Richard K. Armey and Sens. Richard C. Shelby, R-Ala., and Arlen Specter, D-Pa.

The addition method tax is used in some countries to tax the value added by financial institutions, which is difficult to compute under a tax credit invoice VAT, because the intermediation charge that should be taxed is embedded in the interest, premium, or return, which should not be taxed. Israel, Argentina, and France have experience with the addition method tax. Italy administers a direct addition method tax, called IRAP, at the regional level. It is not a destination-based VAT, however, because the tax is not refunded at export or levied at import.

India and Sri Lanka used to levy a non-cash-flow type of personal expenditure tax in the 1950s, but abandoned it after a few years because the tax proved difficult to administer properly. Subsequently, the feasibility of the expenditure tax has greatly improved following the pioneering work of an able lawyer, William Andrews (1974), and in his wake the U.S. Department of the Treasury (1977) and the Meade Committee (1978). Andrews showed that annual taxable consumption expenditures can be computed on an aggregate cash flow basis as the difference between incomings and savings rather than by having to add up all individual expenditures made during the year. In the United States, the expenditure tax, called the Unlimited Savings Allowance (USA) tax, has been tabled by the Strengthening of America Commission under the leadership of former Sens. Sam Nunn and Pete V. Domenici, who proposed that it be combined with a direct subtraction method tax at the business level (Seidman, 1997).

III. Lawyers, Economists, and Accountants

This section discusses the views of the legal, economic, and accounting professions on the VAT. There is much to learn from the opinions, which emphasize different aspects of the tax.

A. The Rigor of Lawyers

1. VAT law design. Lawyers are indispensable in making the VAT operationally possible. Unambiguous legislation is essential if a VAT is to be effectively implemented. Under any tax, but particularly a tax that is based on voluntary compliance, clear definitions are required of who should be taxed, on what, where, when, and to what extent. In legal jargon, terms such as "taxable person," "taxable and exempt supplies," "place and time of supply," and "taxable value" should be minutely prescribed.[10]

Taxable persons, who must apply for registration, are liable for tax for all amounts received or receivable by them for taxable supplies made in the course of a business, trade, or similar activity. Persons, natural and legal, are considered taxable persons only if they make taxable supplies independently. This excludes employees and agents acting for and on behalf of a principal from the taxable persons category. Only taxable persons can issue VAT invoices, which entitle buyers of taxable supplies to a credit for the tax shown on the invoice. Also, they must keep prescribed records of their economic activities, which serve as the basis for verifying whether they have met their obligations.

The VAT is imposed on "supplies of goods and services," meaning all economic activity unless specifically exempted. A supply of goods is defined as "the transfer of the right to dispose of tangible property as owner," a civil law concept. Generally, tangible property includes "electricity, gas, heat, refrigeration, and the like." Services, tangible as well as intangible, are defined in catch-all fashion as "any transaction that does not constitute a supply of goods," including "obligations to refrain from an act or to tolerate an act or situation." To be taxable, supplies must be made against consideration, called the "taxable value," which includes all forms of payment received by the supplier, in cash or in kind, whenever and however paid, regardless of who pays them. Gifts are not taxable, but nonbusiness use of a supply, for example, for personal or employee consumption, is taxable if provided free of charge. Exceptionally, arm's-length prices may be substituted for actual realized values, for example, if the parties to a transaction are the same or related.

When it has been determined that a supply of goods and services has taken place, it is important to ascertain the place and

[10]For an excellent summary treatment of the legal issues, see Williams (1996).

time of the supply. The charge to VAT extends only to goods and services supplied within a particular taxing jurisdiction or imported into that jurisdiction. Supplies of goods are located where the goods are delivered, made available, or handed over, except if goods are to be assembled or installed, in which case the place of supply is the place where the goods are assembled or installed. Since services cannot be the subject of physical observation and control, some other definition of the place of supply is needed. Under the EU's new rules (to be effective as of 2010), the place of supply for business-to-business (B2B) services is the place where the recipient of the services has his business, while business-to-consumer (B2C) services are taxed at the place of the provider of the services.[11]

Further, the timing of the supply is important for deciding when a VAT invoice has to be issued. This in turn determines the tax period in which the VAT is due regarding the supply. As a rule, the time of supply occurs when an invoice is issued, generally within a week of the time when goods are delivered, made available, transported, or paid for — whichever event occurs earlier. The time of supply of services occurs when the services are rendered. Generally, input tax credits follow these timing of supply rules. Apportionment rules are in place for those cases when taxable persons make exempt as well as taxable supplies, or when they make personal use of business assets. No input tax credit is allowed for a number of goods and services, which although used in the course of taxable activities are indistinguishable from goods and services bought by consumers. Examples are personal or living expenses, employee benefits, recreational equipment and facilities, and passenger vehicles.

2. The VAT as a transactions tax. As implied by this brief description of VAT rules, the legal profession is adamant about viewing the VAT as a tax on transactions by registered entities against consideration. Lawyers also maintain that the VAT is a tax on consumption expenditures rather than on, more broadly,

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[11]Both rules are subject to major overriding exceptions concerning services to immovable property (taxed where the property is situated); cultural and educational ervices, and restaurants (taxed where actually performed); transportation (taxed proportionate to distance); and vehicle rentals (taxed where provided).

consumption activities. Moreover, they assert that the VAT is a tax on current consumption — on all goods and services that leave the ring of registered entities, regardless of whether they are consumed immediately or embody a stock of services that are consumed over the lifetime of the asset (for example, residential housing, cars, household appliances, and furniture).

This contrasts with the view held by economists that, ideally, the VAT should tax all consumption activities, including self-produced items of consumption, such as meals, because this would ensure equal treatment with other products bought in the marketplace. Lawyers would not consider this a taxable event, although they would tax, say, vegetables withdrawn from business stock for personal use by the greengrocer as a taxable self-supply on the argument that the vegetables are produced in a business context, not in a personal capacity. Accordingly the greengrocer's homegrown carrots used for personal consumption (and not sold to customers) would not be subject to VAT. Economists would like to tax both events.

Economists also maintain that the VAT is a tax on flows rather than stocks. Ideally, the homeowner should be taxed periodically on the rental value of his property, just as the tenant should be taxed on the rent invoiced by the landlord. However, lawyers would argue that residential property should be taxed when the house is transferred from the taxable builder to the exempt owner-occupier. This follows from the legislator's view that owner-occupiers should not be registered for VAT purposes. Lawyers point out that the *in rem* nature of the VAT does not support the position that durable consumer goods should be treated differently from nondurable goods. As a transactions-based tax, VAT should be imposed when the title to a durable consumer good passes on to the exempt consumer.[12]

[12]Both views result in the same tax liability when the VAT on the value of newly created residential property is viewed, as it should be, as the tax on the present discounted value of the future dwelling services of the property. This implies, of course, that increases or decreases in the value of the dwelling services, reflected in changes in the value of the property, are not included in the tax base. For a more detailed treatment of the differences between an economist's and a lawyer's view of VAT (illustrated by the treatment of real estate), see Cnossen (1996).

Finally, the tendency of lawyers to accept the legislator's product as given means that they tend to pay notably less attention to the distortions caused by the VAT than do economists. These distortions, which are a cost to society over and above the revenue yield of the VAT, result mainly from exemptions and, to a lesser extent, from rate differentiations. Exemptions distort input choices (for example, outsourcing) and harm exports. Rate differentiations interfere with consumer preferences and hence producer choices.

B. The Insight of Economists

Economists are good at analyzing the nature of a consumption tax.[13] This can be done on the basis of a simple equation showing the identity between the sources (wages and capital income) and the uses of income (consumption and savings) in a household budget or a country's national accounts. The following identity shows the relationship between the two sides of the budget for a closed economy and abstracting from government operations:

Equation (1): $$Y \equiv W + R \equiv C + S$$

or

Equation (2): $$C \equiv Y - S \equiv W + R - I$$

Y is total income composed of labor income W and capital income R, C is consumption, and S is savings (which equals I, that is, investment). R is the sum of the risk-free or normal return on capital (in other words, its opportunity cost), entrepreneurial rewards for risk-taking (which can also be considered as labor income), and economic rents. In sum, R represents business profits, conventionally computed. The opportunity cost of capital is also called the hurdle rate of return. At the margin, it equals the rate of return on a riskless project. Accordingly, it can be likened to the inflation-adjusted, risk-free world rate of interest. A business will go on investing up to the point at which the expected rate of return on the project just equals the discount rate, which is the opportunity cost of capital.

[13]For a useful treatment, see Auerbach (1997).

Each of the three terms in identity (2) can serve as the base for a particular consumption tax. Basically, the RST has C as its base. The RST is paid by consumers to businesses selling at retail, who remit the tax to the government. Similarly, the personal expenditure tax can be identified with a tax on Y - S levied at the individual level. It resembles the current tax on wage income, which permits a deduction for pension contributions, but taxes the contributions plus accumulated capital income on later payout, while the income net of the pension contribution is currently consumed.

The term W + R - I, representing value added, forms the base for the other forms of consumption tax. It is readily apparent that at the business level this value added is equivalent to the difference between sales and purchases in the P&L account, but calculated on a cash flow basis.[14] In other words, investments (including inventories) are expensed immediately; the tax is fully creditable against the tax on sales, to use VAT terminology. This contrasts with the income tax's matching principle under which the cost of investments is expensed over their economic life; hence, the normal return on capital is taxed.

As stated above, value added is taxed directly under a direct subtraction method tax, while it is taxed indirectly under a VAT. Under the flat tax, wages (W) are also deducted from value added (as calculated under the direct subtraction method) and subsequently taxed at the level of individual earners. The remaining tax base, that is, R - I (appropriately called business cash flow rather than capital income), is taxed at the business level. An important question under the flat tax is what to do with pension contributions: tax them as wages and exempt payouts (prepayment method) or exclude them from wage income and tax later payouts along with the capital income accumulated in pension funds (standard method). The flat tax, as proposed in the United States, follows the standard method. In principle, the present

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[14]Cash flow accounting should not be confused with cash basis accounting. In contrast to cash basis accounting, cash flow accounting is accrual based.

discounted value of the tax liability under this standard method equals the tax liability under the prepayment method.[15]

The taxation of business cash flow distinguishes a consumption tax from a wage tax, which taxes W only. The two are equal if R - I is zero, which it is in a fully competitive market in which there are no economic rents to be earned. These rents can be associated with, for instance, headstarts, such as a favorable location, a well-known brand name, or a new technique or product. Further, investment (I) may be taken to represent the present value of the services rendered by new business assets discounted at the normal rate of return on capital. Therefore, R - I represents the inframarginal return on old business assets. On the introduction (or increase) of a consumption tax, this tax is capitalized in the form of a lower value of the old assets suffered by the owners. For this reason, economists often refer to the VAT as a tax on wages plus old capital.

This discussion shows that the only difference between a consumption tax and an income tax concerns the tax treatment of the normal risk-free return on capital, which is exempt under a consumption tax but taxed under an income tax. It follows that a VAT can be converted into an income tax by disallowing an immediate credit for the tax on investment goods against the tax on sales, but permitting this credit to be spread over the economic life of investment goods. By the same token, an income tax can be converted into a VAT by taxing wages plus business profits after permitting an immediate write-off for investment goods and clawing back any deduction for interest.[16]

Although their insights are most illuminating in understanding the nature of the VAT, economists tend to be dismissive of the legal requirements for a good tax, which are essential for tax certainty. VAT practice, which has to be rooted in civil and commercial usage, is often more obstinate than economists realize or are willing to admit.

[15] For the equivalence and the conditions under which it holds, see U.S. Department of the Treasury (1977).

[16] For an interesting legal analysis showing the link between an income tax and a consumption tax, see Slemrod (1997).

C. The Precision of Accountants

Accountants rightly believe that the VAT and other consumption taxes are best understood by working through the computations that are required to ascertain their bases and liabilities from the P&L accounts of taxable business firms. Moreover, this makes it possible to compare the consumption tax base directly with the base of the business income tax, which is also derived from the P&L account.

1. VAT and the P&L account. The P&L account is the central summary statement of a business firm's activities. Consider the stylized example in Table 3, which shows the P&L account of a U.S. trading firm (rearranged to aid the understanding of the subsequent computations) as well as the items that enter into the VAT base and the corresponding gross and net tax liabilities.

The business sells goods and services that it produces by adding the value of the services of its labor and capital (understood as business cash flow, as defined above) to its purchases from other firms. The left side of the table, under A, shows the firm's purchases of goods and services, including a piece of machinery, which is depreciated over four years. Also, opening and closing inventories are shown; $200 has been added to inventory in the reporting period. The right side of the table, under B, shows the firm's sales of goods and services. Further, C, factor rewards, gives details of the value added by the firm's labor and capital in the form of wages, depreciation, interest paid, and net profits earned. Also, the firm has some stocks and bonds on which it earns investment income, which is shown under D.

The VAT computations are shown in the top of the table under A and B. VAT is charged at a rate of 10 percent on sales of goods and services, and a credit is permitted for the VAT on purchases. Accordingly, the net VAT liability is $80 (line F).

Clearly, the entries for purchases in the conventional P&L account cannot be used directly to ascertain taxable value added. The reason is obvious. Although the P&L account and the VAT both record the transactions on an accrual basis, the VAT is also levied on a cash flow basis of accounting. Thus, no correction needs to be made for the change in the value of inventory, which must be made in the P&L account to match sales and purchases

Table 3. VAT and the Profit & Loss Account
(In US $, excluding 10 percent VAT)

Costs	P&L Account	VAT		Proceeds	P&L Account	VAT	
		Base	Tax			Base	Tax
A. Purchases	**800**	**1,100**	**110**	**B. Sales**	**1,900**	**1,900**	**190**
Goods	950	950	95	Goods	1,600	1,600	160
Services	50	50	5	Services	300	300	30
Inventory → open: 150 close: 350	-200	-	-				
Machinery (depreciation — 4 years)	-	100	10				
C. Factor rewards	**1,300**	**-**	**-**	**D. Investment income**	**200**	**-**	**-**
Wages	450	-	-	Dividends	125	-	-
Depreciation	25	-	-	Interest	75	-	-
Interest paid	35	-	-				
Net profits	790	-	-				
E. Totals (A + C; B + D)	**2,100**				**2,100**		
F. VAT base and tax (B - A)		**800**	**80**				

in the reporting period for business income or commercial purposes. Further, the cash flow basis of accounting implies that the tax on the purchase of machinery is credited immediately against the VAT on sales.

Note that the VAT does not enter the P&L account; it is not a cost to business. VAT would be included in the value of purchases shown in the P&L account if the purchases were exempt, yet VAT had been levied on the inputs used in producing the purchases. Of course, VAT may appear on the balance sheet under accounts payable or receivable.

2. Comparing consumption taxes. The figures in the P&L account (Table 3) can also be used to compute the tax liabilities of other consumption taxes (and the business income tax), except the personal expenditure tax. For this purpose, the figures are regrouped in Table 4. Cash flow accounting is applied to inventory and machine purchases, but the matching principle is applied to the calculation of the base and the liability of the conventional business income tax. The top of the table shows the tax base calculations, the bottom the computation of the tax liabilities.

The calculation of value added under the VAT, the direct subtraction method tax and the flat tax can be performed without much ado, but the calculation is less straightforward under the addition method tax. Wages are shown on a cash flow basis, but rents (inframarginal profits) must be ascertained by starting with taxable profits for business income tax purposes (that is, $790, line 13), subtracting investment income (line 11; this is not value added by the firm), the purchase of machinery (line 9) and the addition to inventory (line 8), and by adding interest paid (line 7) and depreciation (line 6). Accordingly, rents total $350, which is added to wages (that is, $450) to obtain taxable value added of $800 (line 12).

The calculation of the RST is not shown in Table 4. It would be imposed on sales ($1,900) in Table 3 at a rate of 10 percent, and the tax liability would be $190. This amount is the same as the sum of the net VAT liability in Table 4 (that is, $80 ($190 VAT on sales minus $110 VAT on purchases)) plus the VAT on purchases (that is, $110), which, under VAT, is paid by the firm to its suppliers, who then remit this amount to the government in proportion to their own value added.

Table 4. Computation of Consumption Tax and Business Income Tax Liabilities (In US $, excluding 10 percent tax)						
	Consumption Taxes				Business Income Taxes	
P&L Account	Tax Credit Method VAT	Direct Subtraction Method Tax	Flat Tax	Addition Method Tax	Conventional Business Income Tax	Cash Flow Business Income Tax
Tax bases						
1. Sales	1,900	1,900	1,900		1,900	1,900
2. Purchases	-1,100	-1,100	-1,100		-800	-1,100
3. Value added/gross profits	=800	=800	=800		=1,100	=800
4. Wages			-450	+450	-450	-450
5. Rents/cash-flow			=350		=650	=350
6. Depreciation				+25	-25	
7. Interest paid				+35	-35	
8. Inventory change				-200		
9. Purchase of machinery				-100		
10. Operating profits				+590	=590	
11. Investment income					+200	
12. Taxable value added	800	800	800	800		
13. Taxable profits/cash-flow					790	350
Tax liabilities						
A. VAT	80					
a. VAT on sales (10% of 1)	190					
b. VAT on purchases (10% of 2)	-110					
B. Direct subtraction method tax (10% of 3)		80				
C. Flat tax			80			
a. Tax on wages (10% of 4)			45			
b. Tax on rents (10% of 5)			35			
D. Addition method tax (10% of 12)				80		
E. Business income tax (10% of 13)					79	
F. Cash-flow business tax (10% of 13)						35

The calculations in Table 4, like the earlier accounting identities, establish that the four *in rem* consumption taxes and the flat tax are economically identical given the same base and rate. And, as noted above, this holds true for the personal expenditure tax.

3. Business income taxes. For comparison purposes, Table 4 also shows the computation of the tax liabilities of two kinds of business income tax:

- a conventional business income tax, under which purchases are related to sales in the same reporting period (matching principle) and machinery is depreciated over a four-year period; and
- a cash flow business income tax, which allows the immediate expensing of inventory additions and machinery, but which does not allow a deduction for interest.[17]

The application of the matching principle implies that a conventional business income tax includes the normal return on capital as well as rents (inframarginal profits) in its base. By contrast, a cash flow business income tax excludes the opportunity cost of capital from its base by allowing immediate expensing. In other words, its tax base consists of inframarginal profits. Not surprisingly, the base of a cash flow business income tax is the same as the item "rents" in the base of the flat tax (that is, $350). Accordingly, the return on marginal investments, the hurdle rate of return, is not affected by a consumption tax. Other things being equal, this should promote saving and investment compared with an income tax.

Finally, the calculation of the various consumption and business income tax liabilities from the P&L account clearly indicates that all of these taxes are basically identical for tax compliance purposes. The VAT, like the business income tax, is an accounts-controlled tax. Accordingly, there is little difference between a VAT audit and a business income tax audit. This implies that

[17]Note that the cash flow variant is equivalent to a corporation income tax, conventionally computed, which permits a deduction from profits of the normal return on equity (equal to the inflation adjusted world rate of interest) and does not tax this return at the shareholder level (or the deductible interest on debt at the debtholder level). This variant is known as the allowance for corporate equity (Institute for Fiscal Studies, 1991).

these taxes should be administered by the same tax organization; return and payment processing activities could be placed in a separate department, but VAT audits should be performed jointly with income tax audits. Also, tax enforcement procedures should be closely linked to similar procedures for income tax purposes.

IV. Lessons From Worldwide Experience

This article has shown that a discussion of various alternative consumption taxes sheds light on the nature of VAT. Economically, the VAT is equivalent to an RST, even regarding the timing of tax collections. VAT is the preferred form of consumption tax, however, because it is collected piecemeal throughout the production distribution process, does not interfere with the forms and methods of doing business, unambiguously relieves exports of tax, is politically robust, is least vulnerable to evasion and avoidance, and is relatively easy to understand for the business community. By not taxing the normal return on capital, VAT does not affect the hurdle rate of return on investment.

With VAT, the eye should be on the ball, and the ball is revenue. As an *in rem* tax, VAT cannot be used to achieve vertical equity goals. Its main objective is to raise revenue as neutrally as possible. This requires the broadest possible base and a single rate. In this respect, the European VATs leave much to be desired (Cnossen, 2003). The EU pioneered the VAT and mistakenly tried to align its burden distribution as closely as possible to the old turnover taxes, although all member states had other more sophisticated instruments in place, such as income taxes and social benefit schemes, to manipulate the overall tax and government expenditure distribution patterns.

If the United States were to adopt a VAT, it is crucial to get it right from the start (Keen, 2009). Deviations from the undisputable requirements of a modern VAT are nearly impossible to undo once the tax has been introduced. Basically, the following lessons can be learned from the experience in new VAT countries, such as New Zealand, Singapore, and South Africa, and, to a lesser extent, Australia and Canada (which have unnecessarily muddled up the VAT rate structure):

- Limit exemptions to those dictated by strict administrative cost benefit considerations. Exemptions violate the logic and functionality of the VAT. They distort input choices and harm exports. Accordingly, most health, education, cultural, and financial services should be brought into the VAT base. Exemptions should be confined to elementary education and the sale of used residential housing.

- Levy the VAT at a single rate and do not impose a zero rate on so-called basic necessities, such as groceries. A zero rate on food is not a well-targeted instrument to alleviate the VAT burden on the poor. In absolute terms, the benefit of a zero rate accrues mainly to middle and high-income consumers who buy more expensive varieties of food, eat out more often, and throw food away more easily.[18] Consequently, the concessionary treatment of food tends to give twice as much relief to high-income groups than to low-income groups, an odd way of alleviating the plight of the poor. The zero rate should be confined to exports.
- Provide for a high threshold of at least US $100,000 (and probably higher), so that small businesses and farmers do not have to register and pay VAT, saving on administration and compliance costs. Of course, small entities would still pay VAT on inputs purchased from taxable businesses, implying that only a part of the potential revenue would be forgone.[19] At the same time, optional registration should be provided for small businesses, so they can pass the tax on inputs on to their customers, if desired. A high threshold would minimize the operational overlap between a federal VAT and the RSTs of the states.

Whether the United States should introduce a VAT is a question that is not for this author to answer. But if it does and

[18]For these and other reasons why an industrialized country should levy the VAT at a single rate, see Cnossen (1999).

[19]Based on an earlier publication (Cnossen, 1994), Cnossen (2002) calculated that a US $100,000 exemption would reduce the number of potential registrants (25 million at that time) to approximately 9 million (including 5 million voluntary registrants) — less than the registrants under a national RST. The exempt registrants would account for 2.6 percent of aggregate gross receipts. In other words, if their value added would be one-third of gross receipts and the VAT rate would be 10 percent, the revenue forgone would be less than 0.1 percent of gross receipts.

heeds the lessons summed up above, it would have one of the most modern VATs in the world.

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