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Value-Added Tax

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Value-Added Tax

A value-added tax (VAT) is a tax on the value created in a good or service by a business in any stage of production, distribution, or sales.

Definitions and Equivalencies

Value added is simply the difference between the value of the goods and services sold and the value of goods and services purchased as intermediate inputs. Consider the general cash flow equation for a firm.

(1) $$S + K^{+} = L + M + K^{-}$$

The equation states that cash comes into a firm from capital inflows (K^{+}) – new equity and borrowing – and proceeds from sales. Cash is used for payments for labor (L) and intermediate goods (M).[1] In addition cash is retained or used for dividend and interest payments as well as any retirement of debt and equity (K^{-}).

Value added was defined above as the difference between revenue from sales and the cost of inputs:

(2) $$VA = S - M = L + (K^{-} - K^{+}).$$

Equation (2) demonstrates that there are several ways to impose a VAT. We could tax gross sales net of intermediate input purchases at each stage of production. This forms the basis for a "subtraction method" VAT. Alternatively, we could tax gross sales and allow a credit for taxes paid by registered suppliers of intermediate inputs to the firm. The "credit method" VAT works in this fashion. A third method is to tax the factor payments to capital and labor. This forms the basis for an "addition method" VAT.

Value-added taxes are common throughout the world with the notable exception of the United States. Most countries use the credit method arguing that this method is self-enforcing since the ability to take a credit for VAT paid at an earlier stage of production requires suppliers to provide an invoice detailing their VAT payments.

Tax Neutrality

As described at this most general level, a VAT shares all the attributes of a broad-based consumption tax. If comprehensively applied, it is neutral across all forms of purchased consumption. And since capital purchases are expensed (immediately

[1] Capital purchases are generally included in M. This makes a VAT a consumption tax. If capital depreciation is included in M, then this would be an income-type VAT. If no capital deduction of any form is allowed, then this would be a gross output VAT. For the remainder of the entry, I will focus on a consumption-type VAT.

deducted from the tax base), the rate of return on capital is unaffected by the tax.[2] In practice, VATs are not neutral for a number of reasons. First, if capital is not expensed, returns to capital are affected by the tax. Most VATs are consumption-type VATs so this is not a significant problem. Second, as noted by Cnossen (1998), some countries extend the VAT up through the manufacturing or wholesale stage but not through the retail stage. This creates distortions across consumption given the different ensuing tax rates on different commodities.

Finally, many VATs exempt certain sectors from the tax, "zero-rate" sectors or commodities, or apply a reduced rate to certain commodities (e.g. food for home preparation). Zero rating in a credit method VAT means that firms apply a zero rate to their tax base but receive a credit for all VAT paid by suppliers. Zero-rating has no impact if applied at an intermediate stage of production since any taxes foregone at one stage are made up at the next stage. Zero-rating at the retail stage means the commodity is untaxed by a VAT. Exempting sectors from the VAT process may create peculiar outcomes. If an intermediate sector is exempted from taxation, downstream stages of production will pay a VAT not only on their value added but on the value added created in sectors upstream from the exempt sector for which no credit was received. The result is that exemptions at an intermediate stage of production can lead to the effective VAT rate being *higher* than the nominal rate. For this reason, many countries that exempt certain sectors (generally small businesses) allow voluntary participation in the VAT system. Note too that exemptions at the retail stage create incentives for vertical integration to increase the proportion of value added exempt from taxation.

Design Issues

A VAT can be levied on an "origin" or "destination" basis. An origin VAT taxes value added in the country in which the value added is produced while a destination VAT taxes value added where it is consumed. Most countries employ a destination VAT and use a border tax adjustment whereby a VAT is applied to the value of imports and rebate provided for the value of exports. While it is popularly believed that border tax adjustments favor export industries, a flexible exchange rate in general leads to the same trade balance whether the VAT is applied on an origin or destination basis.[3]

Border tax adjustments are commonly applied by customs authorities and this has given rise to special problems for the European Union with its abolition of border controls in 1992. Keen and Smith (1996) note conflicts between two important goals: maximum autonomy for individual countries to set their own tax rates versus a system of country VAT structures that does not impede the creation of a single European market. Keen and Smith propose a "Viable Integrated VAT" or VIVAT to address this problem. The VIVAT applies a harmonized VAT rate to intermediate producers in all European countries and a different rate for final consumption sales. The rate on final sales would vary across countries based on individual country preferences. The VIVAT can be

[2] As with all consumption taxes, the efficiency gains from a switch from income to consumption taxation depend significantly on the tax treatment of old capital. On this point, see Auerbach and Kotlikoff (1987).
[3] Grossman (1980) demonstrates that this proposition fails in a world with trade in intermediate goods.

thought of as a harmonized EU wide VAT and a system of individual country retail sales taxes, a point that reminds us of the close connection between a VAT and a retail sales tax.

McLure (2000) notes that the VIVAT requires firms to charge different rates to different classes of customers, a non-trivial burden. He also notes that a destination based system of VATs in a sub-national system can give rise to tax evasion by households or unregistered firms importing goods (which are zero rated at the exporting country's border). McLure proposes a Compensating VAT (CVAT), essentially an additional federal level tax to guarantee the tax revenues that might otherwise be lost to cross-border tax evasion. The key point here is that considerable administrative complexity comes into play when a VAT is implemented by a group of countries (or states) within a common trading system (or federal government).

As with any other consumption tax framework, taxing housing and financial services is problematic with a VAT. One approach for treating housing services follows from an arbitrage argument that the present value of the stream of future consumption services from housing is equal to its purchase price. With this assumption, a tax-prepayment approach levies the VAT on the first sale of a house (but not subsequent sales) as well as additions or maintenance. With constant tax rates, this tax payment is equal to the present value of the taxes that would be paid on the housing services enjoyed by occupants of the house.[4] Alternatively, the sale of all residential housing and rental income are subject to tax while the purchase of residential housing is deductible. This approach treats housing like any other capital asset which produces services (housing). Measuring and taxing the imputed rental income on owner occupied housing is a significant problem for this approach. For this reason, most consumption taxes favor the tax prepayment approach.

Financial services are even more difficult to handle under consumption taxes. One approach is to tax the net cash flow from financial services. In the terminology of Meade (1978), this would be an R+F (real plus financial) consumption tax. As Auerbach and Gordon (2002) point out, this creates considerable administrative problems since other transactions are treated on an R basis, thus giving rise to arbitrage opportunities to avoid the tax. In the European Union financial services are exempt from VAT though Huizanga (2002) has argued that it is increasingly feasible to bring this sector into the VAT system. This sanguine perspective is not shared by all economists.

Tax Incidence and Impacts on Saving and Labor Supply

Because a VAT in its purest form is a consumption tax, its distributional impact as well as behavioral impacts are the same as those of any broad-based consumption tax. To the extent that the VAT is implemented in non-neutral ways (exemptions and zero rating of sectors, multiple tax rates, etc.) consumption distortions will arise similar to those of any differential rate commodity tax system.

[4] If tax rates rise (fall) in the future, the tax prepayment approach raises less (more) revenue than if the housing services were taxed directly.

Many countries apply a VAT tax structure with lower rates on perceived necessities (food, for example) on distributional grounds. Most economic analyses of VAT proposals recommend a uniform tax rate on all commodities to avoid consumption distortions and recommend using an income tax to effect desired income redistribution.[5] While reducing tax rates on food and other necessities provides benefits to low-income households, this is a blunt instrument for redistribution given the resulting reduction in taxes to wealthy people's purchase of food (and other low or zero rated commodities).

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Cross-Referencing

Consumption taxation
Fiscal federalism
Optimal taxation
Tax reform

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[5] Cnossen (1998) recommends a dual rate system for developing countries on the grounds that income taxes are administratively unfeasible in these countries.

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