

CENTER OF PLANNING AND ECONOMIC RESEARCH

LECTURE SERIES

27

THE VALUE-ADDED TAX

By

CARL S. SHOUP

ATHENS 1973

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THE CENTER OF PLANNING AND ECONOMIC RESEARCH

The Center of Planning and Economic Research (KEPE) was founded in 1961 as an autonomous Public Organisation, under the title "Center of Economic Research", its basic objective being research into the problem of the operation, structure and development of the Greek economy. Another of its objectives was the training of young Greek economists in modern methods of economic analysis and research. For the establishment and operation of the Center considerable financial aid was provided by the Ford and Rockefeller foundations, and the United States Mission to Greece.

During 1964, the Center of Economic Research was reorganised into its present form, as the Center of Planning and Economic Research. In addition to its function as a Research and Training Institute, the Center, in its new form, was assigned the following tasks by the State: (1) The preparation of draft economic development plans, (2) the evaluation of public investment programmes and, (3) the study of short-term development in the Greek economy and advising on current problems of economic policy.

For the realisation of these aims, the KEPE, during its first years of operation (1961-66) collaborated

with the University of California at Berkeley. The latter helped in the selection of foreign economists who joined the Center, to carry out scientific research into the problems of the Greek economy and in the organisation of an exchange programme, including visits of American students to the Center, and the post-graduate training of young Greek economists at American universities.

The research activity of the KEPE into the problems of the Greek economy, is presented in two series of publications, the "Research Monograph Series" and the "Special Studies Series A and B". The "Research Monograph Series" includes studies which, in addition to their practical interest, also have a theoretical interest. The "Special Studies Series A and B" include mainly studies of an empirical content. More specifically, Series A includes studies referring to fundamental problems of economic and social conditions in Greece and is distinguished from Series B by the fact that it includes a more systematic and detailed analysis of the subjects covered.

The Center has also developed a broad programme of scholarships for post-graduate studies in economics. Thus, in collaboration with foreign universities and international organisations, a number of young economists from Greece are sent abroad each year, to specialise in the various fields of economics. In addition, the KEPE organises a series of training seminars and lectures, frequently given by distinguished foreign scholars invited for that purpose to Greece. The lectures

presented at these seminars are published in two series under the titles: "Training Seminar Series" and "Lecture Series".

In addition to the above, the KEPE maintains contact with similar institutions abroad, and exchanges publications and information concerning development in methods of economic research, thus contributing to the promotion of the science of economics in the country.

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The subject matter of this book is based on a lecture delivered at the Center of Planning and Economic Research in November 1972, when the author visited the Center as an interregional advisor on tax reform planning of the United Nations.

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I. RECENT SPREAD OF VALUE-ADDED TAX (VAT)

The value-added tax, of the consumption type (see explanation in Section II below), was first adopted in Brazil, in 1967, as a means of financing the state governments of Brazil.¹ Later that same year, Denmark replaced its wholesalers tax with a value-added tax. Beginning in 1968, member countries of the European Economic Community began to introduce the VAT to replace their cascade turnover taxes (in France, to replace a limited value-added tax and a retail tax); the only E.E.C. country yet to adopt the VAT is Italy, which is scheduled to introduce it in 1973. So is the United Kingdom, where the VAT will replace the U.K. purchase tax and selective employment tax. Certain other European countries have adopted the VAT or plan to do so in the near future.

1. For a thorough and penetrating analysis of the Brazilian VAT, see Michèle Guerard, *The Brazilian State Value-Added Tax*, Staff Papers, International Monetary Fund, 1972, Washington, D.C. The Ivory Coast and Senegal value-added taxes, though introduced before 1967, are apparently not true broad-based value-added taxes (see next paragraph of text).

In the developing countries, a VAT has been introduced (in addition to Brazil) only in Ecuador (1970), Uruguay (1968), Ivory Coast (1960), Senegal (1966) and the Malagasy Republic (Madagascar) (1969). In Ivory Coast and Senegal the tax is scarcely a true value-added tax of general scope, since it "seems to extend in fact, to only a small part of merchandising activities beyond the manufacturing and import stage".¹

1. Michèle Guerard, *The Value-Added Taxes Employed in Developing Countries*, draft of paper for International Monetary Fund, June 23, 1972 (not for general circulation). For a thorough analysis of the Ecuador VAT, see Marion H. Gillim, "The Value-Added Tax in Ecuador", in Richard M. Bird and John G. Head, eds., *Modern Fiscal Issues* (Toronto: University of Toronto Press, 1972).

II. THE INCOME TYPE OF VALUE-ADDED TAX AND THE CONSUMPTION TYPE

“Value added”, in its ordinary sense, means the value that a business firm adds to the materials, supplies, etc. that it purchases from other firms. It adds value by employing its labour force and its capital to work on these things purchased from other firms. It thus creates another product, or products, which it sells to another business firm, or to the final consumer. The amount of value that is added is represented by the factor payments the firm makes to its employees and to its creditors and owners: wages, interest, profit.

This concept of value added is, however, not the one employed by the countries that use the VAT. If it were employed, it would be an “income type” of VAT. Instead, the VAT countries use the following concept: take the firm’s sales, subtract its purchases from other firms, and apply the tax to the difference. Purchases from other firms include, in principle, purchases of capital goods, though many countries somewhat restrict the deductibility of such goods. For the economy as a whole, the aggregate base of this kind of VAT is identical with the total of consumer pur-

chases, hence the name, "consumption type" of VAT (exports are exempt, imports taxable).

In practice, this consumption type of VAT is not computed directly by the subtraction process just described, but by an analogous process. The VAT rate is applied to the firm's sales. The firm then totals up the VAT shown on its purchase invoices — the bills it has paid to other firms for supplies, capital goods, etc. The VAT is stated separately on these invoices. This aggregate of the firm's "input" VAT is subtracted from the tax on its sales and only the balance is paid by this firm, in tax, directly to the Treasury.

Table I illustrates the difference between the two types of VAT. In a certain year, a certain firm is supposed to show:

Sales	1,000
Wages and salaries paid	200
Materials and supplies purchased from other firms	600
Inventories:	
at beginning of the year	200
at the end of the year	300
Capital goods (life more than one year) purchased from other firms	300
Depreciation on total of capital goods owned by this firm, for this year	100

If we wish to expand this example to include an entire economy, we may do so, in a highly simplified manner, by assuming that the 600 of materials and supplies and the 300 of capital goods were produced, that same year, by other firms that had no expenses except wages and salaries (zero profit, and free raw materials, etc.). Under this admittedly unrealistic assumption, the model is "closed" (no loose ends); the economy's total factor income, hence its aggregate income type VAT base, is 1,300; its consumption-type VAT base is 1,000; the difference is net investment, consisting of net capital goods formation of 200 (300 less 100 depreciation) and inventory accumulation of 100. All of our firm's sales must be to consumers; all the other firms sell only to our firm.

Another way to compare the income type of VAT with the consumption type is to consider a one-firm economy over a period of years, where a capital good is produced, then is worn out in the process of making sales to consumers. Table II presents such an illustration. In year 1 the only thing that happens in the economy is that the firm employs labour to produce a capital good. To simplify, we assume that this firm obtains its materials, etc. at zero cost. It then uses the machine, in year 2 and year 3, to produce a consumer good, without needing to employ la-

TABLE I

ILLUSTRATIVE COMPARISON OF INCOME TYPE AND
CONSUMPTION TYPE OF VAT, ONE FIRM, ONE YEAR

	Value added for VAT, <i>income type</i>	Value added for VAT, <i>consumption type</i>
Profit:	(«normal» value-added concept)	
Sales	1,000	Sales 1,000
Less: Labour	200	Less: Purchases from other firms
Cost of goods sold =		Materials 600
Cost of materials	600	Capital goods 300
Less: excess of closing		
		<u>- 900</u>

inventory			
over opening			
inventory	-100		
		500	
Depreciation		<u>100</u>	
			- 800
Profit			<u>200</u>

Sum of firm's factor activity:

Labour	200	
Profit	<u>200</u>	
Value added, (income created)		Tax payable at 20 % =80
by firm	400	

Base for VAT 100

Tax payable at
20 % =20

TABLE II
ILLUSTRATIVE COMPARISON OF INCOME
TYPE AND CONSUMPTION TYPE OF VAT,
ONE FIRM, THREE YEARS

<i>Year:</i>	1	2	3
Labour (a capitalised expenditure)	100	0	0
Depreciation	0	50	50
Profit at 10 %	0	10	5
Receipts before tax (=consumption)	0	60	55
Tax at 20 %, VAT, <i>consumption</i> type ("VAT-C")	0	12	11
Receipts including tax	0	72	66
Capital investment	0	100	50
Return on investment	0	10 %	10 %
Present values at 10 % interest			
Year 1 tax, VAT-C	0		
Year 2 tax, VAT-C	10.91		
Year 3 tax, VAT-C	9.09		
Total present value VAT-C	20.00		
Tax at 20%, VAT <i>income</i> type ("VAT-I")			
Tax base: Wages	100	0	0

<i>Year:</i>	1	2	3
<i>Profit</i>	<u>0</u>	<u>10</u>	<u>5</u>
Total	100	10	5
Tax at 20 %	20	2	1
Present values at 10 % interest			
Year 1 tax, VAT-I	20		
Year 2 tax, VAT-I	1.82		
Year 3 tax, VAT-I	<u>.83</u>		
Total present value, VAT-I	22.65		
Payroll tax:			
Year 1	20		
Year 2	0		
Year 3	<u>0</u>		
Present value, payroll tax	20		

bour. The machine wears out by the end of the second year. (An example might be a scale to weigh persons, who drop their coins in the scale, to ascertain their weight).

The firm is assumed to obtain a profit of 10 per cent on the capital invested. This capital is 100 in year 2 but only 50 in year 3, owing to depreciation in year 2.

The income type of VAT is imposed on wages

(in year 1) plus profits (sales, less depreciation: in year 2 and year 3).

The consumption type of VAT is imposed on sales, less purchases from other firms. There are no purchases from other firms, in this example, and there are no sales in year 1.

The tax base is therefore:

	Year 1	Year 2	Year 3	Totals
Income type				
VAT base	100	10	5	115
Tax at 20 %	20	2	1	23
Consumption type				
VAT base	0	60	55	115
Tax at 20 %	0	12	11	23

The total over the three years is the same for both types of the tax, but the crucial point is that the timing differs from one tax to the other. More of the VAT has to be paid earlier, under the income type of VAT, hence it represents a heavier tax. The present value of the series of tax bases and tax payments, as of year 1, if a discount rate of 10 per cent is used (since profit is assumed to be 10 per cent a year) is:

Consumption type of VAT:	20.00
Income type of VAT:	22.65

We note, in passing, that the present value of the consumption type of VAT is exactly the same as would be yielded by a 20 per cent tax on payrolls (the payroll occurs all in year 1). This fact illustrates the general theorem that in a 2-factor closed economy a VAT-consumption-type tax is, in economics terms, the same as a payroll tax.¹

1. For proof of this theorem, see Carl S. Shoup, *Public Finance* (Chicago: Aldine, 1969), chapters on value-added tax and on payroll taxes.

III. THE TAX CREDIT DEVICE, IN THE CONSUMPTION TYPE OF VAT

It was noted above that the countries employing the consumption type of VAT (and no country, in fact, employs the income type)¹ all use the tax-credit method, the "indirect subtraction method", rather than the direct subtraction method. Table III illustrates the use of this tax credit method; it also illustrates the effects of leaving some segment of the economy out of the VAT system, by exempting it.

A careful study of Table III shows, from the first column of figures, that if the exemption is limited to the "initial" stage ("raw materials producers"), the economy-wide total of VAT is 30, i.e., 10 per cent of sales to consumers of 300. (In this simplified example, no capital goods are introduced). This is the same as would be obtained if the initial stage were not exempted at all, for, in that case, although the raw materials producers would pay 10 tax to the Treasury instead

1. Some countries approach it, through restrictions on (a) deductibility of capital goods purchases, or (b) prompt payment of negative tax, when tax credits exceed tax on sales.

TABLE III

EFFECT OF EXEMPTING FROM VAT (i) INITIAL STAGE, (ii) INTERMEDIATE STAGE, (iii) FINAL STAGE

		10 % Tax except that exemption without credit applies to		
		i	ii	iii
		Raw materials		
		producer	Manufacturer	Retailer
Raw materials producer to manufacturer	Receipts ex-tax	100	100	100
	Tax on sales	0	10	10
	Total receipts	100	110	110
	Tax credit	0	0	0
	Tax payable	0	10	10
manufacturer to retailer	Receipts ex-tax	200	200	200
	Tax on sales	20	0	20
	Total receipts	220	200	220
	Tax credit	0	0	10
	Tax payable	20	0	10
retailer to consumer	Receipts ex-tax	300	300	300
	Tax on sales	30	30	0
	Total receipts	330	330	300
	Tax credit	20	0	0
	Tax payable	10	30	0
Total tax payable		30	40	20

of zero tax, the manufacturer would pay only 10 tax instead of 20 tax. In the first case the manufacturer gets no credit at all against the 10 per cent tax (=20) on his sale, because his vendor, the raw materials supplier, shows zero tax on the invoices. In the second case the manufacturer gets a credit of 10 against the 20 tax on his sales, since his vendor has paid 10 tax.

The second column of figures in Table III shows that if an intermediate stage is exempted, over-taxation occurs, because the credit for the tax paid at the initial stage gets "lost". The manufacturer, being exempt, files no return. He pays no tax, of course. That means that the retailer to whom he sells will receive a purchase invoice that shows no tax. Therefore the retailer will be unable to credit any previously paid VAT against his own tax. The record of the VAT paid by the raw materials producer has been lost, because the tax credit chain has been broken by exempting the manufacturer, that is, by taking him out of the VAT system. Total VAT tax paid by the economy is 40, not 30.

This result could be avoided by keeping the manufacturer in the system, but taxing his sales at a zero rate. He would file a VAT return, and would subtract, from zero tax, the tax of 10 shown on the invoice of his purchase from the raw materials producer. The resulting "negative

tax" (minus 10) would give rise to a tax rebate from the Treasury, which would pay 10 to the manufacturing firm. The retailer would still have to pay 30, but the aggregate tax would be $10 - 10 + 30 = 30$.

It is essential to note the difference between *exemption* and *zero-rating*. An alternative terminology is "exemption without credit" and "exemption with credit".

Column 3 of Table III shows that if the last stage (retail stage) is the one exempted, aggregate VAT does not vanish, but does suffer a reduction from 30 to 20.

In general, it will usually pay an intermediate-stage firm to get into a VAT system even if it has to pay full VAT, because it can then pass on to its vendees a tax that they can use as a credit against their tax.

Table IV shows the effects of applying a low rate of VAT at one or another stage. The standard rate is, say, 10 per cent and the low rate is 3 per cent. As the first two columns of Table IV demonstrate, application of the low rate at either the initial stage or an intermediate stage will make no differences in the economy-wide VAT bill. What is lost by the low tax rate at one stage is made up at the next stage by a correspondingly reduced tax credit. But if the low rate is applied at the last stage (the retail stage), it becomes the

TABLE IV
EFFECT OF LOW TAX RATE PLACED AT VARIOUS
STAGES

For simplicity, abstract from capital goods and changes in inventory, and let the only factor activity be labour, and assume that it is 100 at each stage; assume each stage is taxable.

Sale (By, To)	10 % tax rate through- out	10% tax except that a 3% rate applies to:		
		Raw materials producer	Manu- fac- turer	Retailer
Labour Costs				
100 Raw materials producer to manufacturer, ex-tax	100	100	100	100
Tax on sales	<u>10</u>	<u>3</u>	<u>10</u>	<u>10</u>
Total receipts	110	103	110	110
Tax credit	0	0	0	0
Tax payable to Treasury	10	3	10	10
100 Manufacturer to retailer, ex-tax				
200	200	200	200	200
Tax on sales	<u>20</u>	<u>20</u>	<u>6</u>	<u>20</u>
Total receipts	220	220	206	220

Tax credit	10	3	10	10
Tax payable to Treasury	10	17	-4 re-fund	10
100 Retailer to consumer, ex-tax	300	300	300	300
Tax on sales	<u>30</u>	<u>30</u>	<u>30</u>	<u>9</u>
Total receipts	330	330	330	309
Tax credit	20	20	6	20
Tax payable to Treasury	<u>10</u>	<u>10</u>	<u>24</u>	<u>-11 refund</u>
Total tax payable to Treasury	30	30	30	9

dominant rate. A 3 per cent rate at the last stage means that the economy-wide tax still is 3 per cent of the aggregate base, no matter what rates were applied at earlier stages.

IV. MAJOR ISSUES OF EXEMPTIONS, ZERO-RATING AND MULTIPLE POSITIVE RATES

The VAT systems now in force or about to be enacted vary substantially in their patterns of exemption, zero-rating (exemption *with* credit), and the use of more than one positive rate. The VAT that is easiest to administer, and easiest for the business world to comply with, is one that has few or no exemptions, that zero-rates only exports, and that imposes only one positive rate. The Danish VAT is almost of this type.

But here a paradox is encountered. Such a simple VAT places a burden on the very poor (since food, cheap clothing, and low-cost housing are not exempted or zero-rated) and strikes the well-to-do rather lightly (since it does not tax luxuries heavily, and no VAT reaches saving at all). These social defects of the easy-to-administer VAT can be offset, in principle, by subsidies on foods, etc., and by making the personal income tax more steeply progressive. But these latter measures are not administratively feasible or socially acceptable in many countries, especially in some developing countries. Such countries must instead try to make the VAT less regressive, by exemptions

or zero-ratings, and by low rates on some goods and services and high rates on others. So, it is unfortunately just those countries with limited tax administrative resources, and faced with a hostile or at least uncooperative body of taxpayers, that are driven, for social reasons, to impose a complex kind of VAT that will, in its turn, strain the tax administrative resources and annoy the world of business.

We now turn to some of the sectors of the economy where these problems are the most difficult.

A. *Farming*

The dilemma with respect to agriculture is that most farmers in many developing countries keep no books and are incapable of making tax returns (or at least cannot be persuaded to do so), and so must be excluded from the VAT system, but by this very fact they are handicapped economically since they cannot pass on to their vendees (wholesalers, or flour millers or other processors) the tax credit representing the VAT that has been imposed on the sellers of fertilizer, pesticides, veterinarians' services (including drugs), farm machinery and equipment, and other things the farmer buys. The tax credit chain is broken by taking the farmer out of the VAT system, with consequent over-taxation of farm products,

as Table III above illustrates. Most of the present VAT countries try to solve this problem by exempting farmers but also either exempting fertilizers, etc. or, alternatively, giving the wholesaler, the flour miller, etc. a credit for a notional (fictitious) tax on the farmers' sales.

The exemption of fertilizers, etc. is, however, not enough, since the fertilizer producer, the farm machinery manufacturer, etc. will in turn have paid VAT on *their* purchases, which they must recoup by charging correspondingly higher prices to farmers. What is needed is not exemption, but zero rating of fertilizers, farm machinery, and the like. This should be feasible, even in developing countries, since the sellers of fertilizer, etc. are usually either large domestic producers or importers. They are literate, and keep books, and therefore can file returns, to claim the tax rebate that will be due to them under zero-rating. (It must be kept in mind that zero-rating requires filing a VAT return; exemption without credit does not). But the government, especially in some developing countries, may be averse to paying out cash in tax rebates. In that event, the zero-rating solution is impracticable.

The other solution, the notional tax credit to be applied to reduce the wholesaler's tax, the flour miller's tax, and so on, is at best only a rough approximation. More important, it does

not remove the disincentive to the individual farmer who is considering whether to purchase fertilizer or some farm machinery, or to call a veterinarian. These purchases are taxed, and the amount of notional tax credit given further down the line to wholesalers, flour millers, etc. does not vary with the individual farmer's decision whether or not to buy the fertilizer. The notional tax credit is at a rate set in the law, considered to be a sort of average compensation to farmers in general for the taxation of their inputs (the compensation is supposed to occur, of course, in the form of higher prices that the wholesalers, flour millers, etc. will offer the farmers).

A third solution is that in the British VAT law. Farmers are kept in the VAT system, but on the whole they are zero-rated, by the fact that zero-rating is granted to (*inter alia*) "Food of a kind used for human consumption" and "Live animals of a kind generally used as, or yielding or producing, food for human consumption".¹ Certain "unnecessary foods" — ice cream, chocolates, potato crisps, pet foods, and so on, which were taxed under the now-repealed purchase tax — are not zero rated (i.e., are taxed at the single posi-

1. G. S. A. Wheatcroft, *Value Added Tax: A Guide to the V.A.T. Provisions of the Finance Bill, 1972* (London: Associated Business Programmes, 1972), p. 69.

tive rate). Moreover, some of the products of animal husbandry are not foods (e.g., wool). Nevertheless, the great bulk of the output of farms is zero-rated. This means either that the farmer himself is zero-rated (insofar as "food" is defined to include the raw form, e.g., wheat, barley — and whether it is or is not seems unclear at the moment), or that the wholesaler or retailer of the processed, final consumer's product, (bread, etc.) is zero-rated. In either case the VAT is effectively removed from farm output without loss of credit for tax paid by those who sell to farmers. But British farmers still must file VAT returns (unless they fall under the general exemption of all firms with, roughly speaking, annual sales of £5,000).

B. Housing, and Construction in General

a. *Housing.* Housing constructed after the VAT has been introduced is not difficult to tax, except where the owner-occupant of the dwelling constructs it in part by his own labour (in that case, he must be taxed as if he sold that much of the value of the dwelling to himself). The lumber (and the logs from which it was made, etc.) are included in the VAT system, and so are the plumbing and lighting fixtures, and the like. The constructor who builds the house or apartment (flats) pays VAT on his contract price and takes

credit for VAT on his purchase invoices. If the dweller is a home owner, the VAT chain ends there. If he is a tenant, VAT is paid by his landlord, and is included in the construction (contract) price.

Nevertheless, many VAT laws remove housing from the general VAT régime. Some of them exempt the sale by the contractor; some of them zero-rate the sale by the contractor (Britain); others exempt some of the materials commonly used in housing. Still others provide other special régimes (quite aside from granting a low rate). The reasons seem to be chiefly¹ (a) a desire to avoid burdening a consumer good (housing) that is thought to be in short supply (although every good except free goods are in short supply), (b) the fact that those whose housing was constructed before the VAT was introduced, and is still being used, will escape VAT, at least as to owner-occupied dwellings, unless the VAT law attempts to tax homeowners on their imputed (notional) gross income, a very difficult administrative task, not to mention the homeowners' opposition to

1. Another reason sometimes given, if the VAT system does not include *services* in general, is that the on-site activity of construction is a "service", hence the VAT should stop with the sale of lumber, etc. to the contractor. This argument is not persuasive; it would apply equally to the automobile assembly plant.

being taxed on something other than cash income.

Accordingly, each country will have to decide for itself how to treat housing under a VAT, in the light of its own social and political attitudes towards homeowners, and towards new housing versus old housing.

Farm housing, old or new, will commonly be exempt (not zero-rated) because so much of it will be constructed by the farmer himself or by small contractors that are out of the VAT system under a minimum-sales provision.

b. *Other construction.* Non-dwelling constructions — factories, warehouses, retail shops, office buildings, power plants, railway lines, etc. — pose no particular problem, in principle, if complete taxation is required, but again, there is in fact no uniform treatment among VAT countries. In some countries the task of taxing large numbers of small (and highly mobile) contractors may be deemed too difficult. (This may be a contributing cause to the exemption of dwelling construction). In others the idea that on-site labour is a “service” (see footnote immediately above), may deter taxing the contractor, if services in general are not taxed. But, whatever the reasons, they must be examined very carefully, for exemption of construction of these buildings has consequences quite different from those of exempting dwellings,

at least owner-occupied dwellings. A factory, warehouse, office building or shop is but a link in a chain of production of various consumer goods. If the tax-credit chain is broken at the contractor stage, over-taxation of the final products made partly by the use of these buildings will be an inevitable result.

c. *Services*. A truly comprehensive VAT includes, of course, consumer services. All the existing VAT laws tax some services, but the laws differ widely in the degree to which they do so. Some VAT laws tax only services that are specified in the law. Other VAT laws declare that all services are taxable except those listed in the law (which are then usually exempted, not zero-rated).

At least three characteristics of the service seem germane to this issue:

(1) Is the service chiefly rendered by small enterprises that keep no books, or are difficult to find (because they are so mobile)? An exemption for all small enterprises might be enough to cover this point.

(2) Is the service one that is rendered chiefly to business firms rather than to households? If so, little revenue will be lost by excluding them.

(3) Is the service rendered with the aid of substantial purchases from other firms (e.g., an accounting service that buys computers, or rents

computer time, in order to render the service, or an automobile repair service that buys automobile parts, etc.)? If so, the service should be included, to prevent overtaxation from a breaking of the tax-credit chain.

d. *Small firms.* Tiny firms, i.e., extremely small firms, can be exempted (not zero-rated), without impairing the working of the VAT appreciably. But the artisan or shopkeeper who works full time throughout the year is to be considered a small firm, not a tiny firm, and should be included, even if he has no help other than from members of his family, if any. Some of these small firms may have to be taxed on an estimated basis (forfeit) until they can be trained to keep books. The Finance Ministry should set up a large number of small training centres for teaching such artisans and shopkeepers the elements of book-keeping, and offer this teaching service at no charge.

e. *Multiple positive rates.* High VAT rates on luxuries will probably not produce much added revenue, and will probably not increase the income elasticity of the tax notably. A large part of the spending of the well-to-do family consists of a greater amount of spending on the same goods that are purchased by the middle classes (e.g., gasoline) or even the poor (e.g., heat). Much of the rest consists of spending on higher qualities

of the same goods purchased by the others (e.g., better grades of meat). Neither of these two types of luxury spending can be subjected to a higher VAT rate (with a few exceptions).

Multiple rates, like exemptions, for particular goods and services cause administrative and compliance complications. If the taxpayer sells goods, some of which are subject to the standard rate, some to another rate, he must keep a record of how much of his sales is of one type, and how much is of the other. Often he can do no more than make a rough estimate. The multiple rates, as we have seen, are ineffective unless they are levied at the very last stage (retail sales), and, moreover, this is the only stage where a multiple-rate structure is necessary (see Table IV above).

The multiple rates, however, including the zero rate, cause less difficulty than does an exemption. The exemption of a good that is sold by a firm that also sells taxable goods requires that credits on a certain part of the firm's purchases be disallowed, i.e., on those purchases that are considered to be connected with the exempt sales. This procedure can be very difficult. In contrast, a firm that sells goods, some of which are subject to one rate, some to another, does not need to allocate its purchases to these two types of goods, even though the purchases have all been subject to the same rate. This cardinal principle of no

need for allocation, provided only that all the firm's sales are subject to some rate or rates (including a zero rate) is not well understood, even by many tax experts, but it is the correct rule, and is one of the distinguishing features of zero rating as compared with exemption.

f. *Administration.* The VAT has the administrative disadvantage of requiring virtually all business firms in the economy to register and pay tax (but see the sections on farmers, and tiny firms, above). It has the advantage of not requiring the seller to ascertain whether his purchaser is a business firm or a householder (i.e., consumer). It has the potential advantage of allowing cross checking of sellers and (excepting consumers) buyers, through computerisation. It also reduces the amount of tax that any one firm has to pay to the government, and this may help some firms avoid getting into financial difficulties. Outright evasion is most likely at the retail stage, and it can be very damaging to the revenue. If the retailer evades by understating his sales, but claiming all of his tax credits, the revenue lost is the tax on the full retail value of the understatement. If, however, evasion takes the form of the retailer's failing to file a return at all (hence claiming no tax credits), the revenue lost is equal to the tax rate times the value added at retail by the non-reporting retailer.

g. *Other matters.* A more extensive analysis of the VAT would include paragraphs devoted to the treatment of banks (usually exempted), insurance companies (also usually exempted, although often taxed separately on premium payments received), exports (always zero-rated), imports (usually taxed upon act of importation), self-deliveries (i.e., for consumer use by the firm, owners or employees, in principle of course taxable), and several other topics that the present paper does not attempt to cover. And as experience with the VAT grows, so too, no doubt, will the number of topics that will require special study and perhaps, even in the simplest VAT, special treatment. The general principle still holds, however: the VAT easiest to administer is the VAT with the broadest scope, the fewest specific exemptions, and the fewest rates.

