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Consumption Taxes: Their Ramifications for Income Distribution

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Abstract

The distribution effects or incidence of consumption taxes such as the Value Added Tax (VAT), Goods and Services Tax (GST) remains a contentious issue. Three aspects have to be distinguished. First is the approach of distribution studies that tends to yield a result of regressivity; second is the computable general equilibrium (CGE) approach that views redistribution as one of 'incidence' among factors of production, in effect, subsuming the distribution of burdens among consumers; and third is the examination of distribution effects over a life cycle that finds the VAT-GST to be mildly progressive. A review of the literature indicates that it is difficult to demonstrate that the VAT is not regressive or adverse for income distribution unless accompanied and countered by a redistributive expenditure package. Countries nevertheless opt for the VAT-GST since it is simple to design and administer, its compliance is believed to be higher than for the income tax, its compliance cost for the taxpayer is lower, and its revenue generating capacity is higher and more certain. The United States remains the only major economy that has not yet introduced a VAT-GST. Even though VAT proposals exist, apprehension regarding its distribution effects in no small way has acted as a barrier. For India, which is preparing to introduce a comprehensive GST comprising central and state government levels, distributional neutrality in the GST's ramifications remains a crucial element in its appropriate design.

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Consumption Taxes: Their Ramifications for Income Distribution[1]

Parthasarathi Shome[2]

1. Introduction

Consumption taxes usually comprise the Value Added Tax (VAT) or Goods and Services Tax (GST)[3], selective excise taxes on demerit goods such as alcohol and tobacco and on depletable resources such as petroleum products whose characteristic domestic excess demand has made it a scarce commodity at the global level, increasingly calling for higher tax rates. The issue in this paper is their incidence effects, or their ramifications for income distribution. This is a matter of some concern since the VAT became increasingly popular from the late 1970's, with an increasing number of countries introducing it in some form over the next three decades, the total crossing well beyond 100 countries, approaching 150. Its popularity zoomed reflecting the feasibility of designing a simple, comprehensible structure that, in turn, facilitated ease of administration and comparatively low moral hazard and leakage of revenue since the revenue from a product could be collected at different stages of its production and distribution, so that if one stage was missed, its revenue could be recouped at the next stage. Further, better than the income tax, the VAT guaranteed a projected amount of revenue reflecting its potential collection since consumption had to take place domestically unlike income, the base of the income tax, which could take flight. The one concern that remained, and remains, is the impact of the VAT on income distribution. This is because since the VAT base is consumption, and consumption decreases as a proportion of income as income rises, its distribution effect is perceived to be regressive with respect to income.

However, the answer to that concern is not so straight forward. There is a rich literature on the distribution effects of a VAT. The conclusions depend on the methodology—econometrics or computable general equilibrium (CGE) model—as well as the context of the analysis—whether it is income/expenditure, or annual/lifetime income that is used as the reference base for the analysis of distribution effects. The thrust of the

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[3] The names VAT and GST are used in a similar context across countries. The latter title may perhaps be viewed as spelling out more vividly the appropriate coverage of the tax that should possess a built-in neutrality in the treatment of all goods and services in the consumption basket. This fine distinction in the nomenclature between the VAT and GST has played a particular role in the development and progress of this consumption tax in India as goods and services have been distinguished in the consumption tax base in reflection of interpretations of the Constitution. The proposed GST at both central and state government levels is attempting to move away from this distinction with the objective of achieving a globally comparable GST.

arguments is clear as long as these considerations are kept in mind for the nature and direction of the final result. The distribution effects of selective excises are also generally known in the context of technical analysis, though a particular environment in which they are imposed—gender profile, prevalence of corruption, possibilities of smuggling, existence of subsidies, in particular on fuel—tends to affect their final incidence.[4] This paper deals primarily with the distribution effects of a VAT/GST.

In what follows, Section 2 attempts a brief survey of the literature in several parts. First, it summarises selected studies that are based on expenditure or income surveys and make prior assumptions regarding how to distribute the burden of a tax (which is essentially short run). Second, it summarises those that use computable general equilibrium models that are longer run in the sense that they allow for post-tax factor movements to be completed. Third, it also points to some of the limitations in the nature of model specificity of the general equilibrium approach that affects the conclusions from using it. Fourth, it elaborates a particular direction in which the literature developed by using a life cycle concept for consumption that tends to yield VAT as a less regressive tax than does the primary, but popular, survey based approach. Fifth, some studies claim that, for practical purposes, a VAT should be considered only with the essential expenditure packages that accompany a VAT's introduction (or replacement of elements of the income tax) and these also yield the tax-expenditure package as non-regressive. Some relevant studies are cited. Section 3 asks the question why the VAT is nevertheless used by so many countries despite its sticky reputation of being regressive. The answer is found in the VAT's revenue productivity, relative simplicity of structure and administration, and the likelihood of less evasion than the income tax. Section 3 presents a handful of country experiences. Section 4 concludes

2. A brief survey of selected literature

a. Studies of tax burdens using a survey approach

Early simple approaches made assumptions about how the effects on consumer incomes of a VAT would be distributed based on acceptable assumptions on how such effects should occur.5 Pechman and Okner (1974) considered the issue of tax burdens and Pechman (1985) asked a similar question as to who really paid the taxes in years prior to his study. He assumed that consumption taxes such as a VAT are shifted

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[4] Ideally, the terms 'distribution' and 'incidence' effects should be distinguished. Distribution is used in the context of studying taxation's effects with the help of income or expenditure surveys and is essentially short run since such surveys are conducted for a year. Incidence is used in the CGE context and is more long term in aspiration since it addresses the issue of how factors of production—after resources are reallocated by producers when any tax is imposed—bear the final burden when all factor movements are completed. In this context, the final incidence of a tax is seen to fall differentially on the owners of factors of production. The effects on consumers are subsumed in their role as owners of factors of production because, ultimately, every consumer is the owner of a factor. Thus, in the CGE context, tax incidence is on factors of production rather than being perceived as falling differentially on consumers by deciles of their income or expenditure levels.

[5] Today there would be less acceptability of such an approach.

forward through the process of production and distribution until the tax is fully borne by consumers in proportion to their expenditures. He came to the obvious conclusion that consumption taxes are regressive reflecting the argument made above on the changing consumption/income ratio as income rises. Using the same approach, Messere and Norregaard (1989) came to the same conclusion for OECD countries.

Among developing countries, Shome (1985) used a similar approach for Thailand. Reflecting the lack of data at the national level, he used an expenditure survey for the Bangkok Metropolitan Area. The context was to study whether the prevailing system of selective 'business' taxes was regressive and, if so, whether Thailand should replace them with a VAT. This early paper derived the fiscal burden of domestic consumption taxes – excise and sales – accounting for nearly 50 percent of domestic tax revenue, across different income groups, using 1982 data. The methodology was one of using a consumer budget survey in the allocation of tax revenues to particular components of the consumption basket, on the basis of the relevant tax laws of the country, a task made especially difficult due to the pervailing complicated revenue code of the sales tax. Results on burdens were presented with respect to the consumption pattern as a whole as well as on individual components of consumption such as food and beverages, apparel, housing, medical and personal care, transport and communication, and recreation and education. The results showed that the overall tax burden with respect to income was slightly progressive between the first (4.5 percent) and ninth (9 percent) deciles and then becoming quite progressive (12.5 percent) in the tenth. It was the category, transportation and communication, that was highly progressive, thus weighting the result of the full consumption basket towards progressivity. The two categories that were clearly regressive were food and beverages, and housing. Education and medical expenses were approximately proportional. Compared to some results based on 1963 data, presented by Salkin (1974), the overall results revealed that the fiscal burden of domestic consumption taxes in Thailand had become more progressive in the two decades between the two studies. Such an outcome is not impossible in developing countries where upper income groups may also be expected to consume regular consumption items in high proportions of their incomes and where, at that stage of development of the Thai economy, easy access to modern communication facilities and private transportation was focused on upper income groups.

The vast majority of research across the world, therefore, took the position that consumption taxes were regressive. Even using the CGE approach—thus having a more elaborated representation of the economy—Ballard, Scholz and Shoven (1987) found that replacing the income tax partially by a VAT—without zero rating or exemptions— yields a regressive outcome: lower income cohorts lose while higher income counterparts gain. Thus the corroboration of consumption taxes such as the VAT being regressive could not be more complete at this point in the literature.[6]

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[6] The design of the VAT base can be of some importance in its distribution implications. Thus India's VAT that operates at the level of Indian states exempts a list of items that tend to be consumed by

b. *Tax incidence studies using CGE and econometrics*

Here it is worth digressing a bit on how the CGE framework had progressed in the analysis of tax incidence thus far. Decades earlier, Harberger (1962) used a precursor of a CGE model in the context of tax incidence theory. Essentially, international trade theory had developed along the lines of two-sector, two-factor models of open (or trading) economies. Harberger used the same concept though there were two fundamental differences. First, Harberger's economy was autarkic (or closed and non-trading). Second, while, in the context of international trade, prices are assumed to be given from global markets, in Harberger's domestic economy, prices would have to be determined within the model framework, a matter somewhat more challenging than taking prices as pre-determined.

Harberger set out an economy-wide two-sector, two-factor model. His incidence results were starkly different from those of Krzyzaniak and Musgrave (1963) who claimed that the tax burden from the corporation income tax—which was intended to fall on corporate capital—was shared by labour. Harberger's more comprehensive general equilibrium framework led him to claim, instead, that the incidence of the corporate income tax was higher than 100 percent on capital,[7] reflecting the nature of estimated elasticities of substitution between capital and labour use. To explain, not only did capital in the corporate sector bear the burden but, as a result of capital leaving the corporate for the non-corporate sector to escape from the tax, the overall supply of capital in the economy became excessive. Capital could be absorbed in the non-corporate sector only with a significantly reduced rental/wage ratio in the economy. The ultimate outcome, when all factor movements across sectors had been completed—which was referred to as the long run—was that capital bore more than 100 percent of the tax. A protracted debate followed, focused on the matter of how the long run, for factors to move between sectors, should be defined. And if such movements were relatively quick to settle, an econometric approach would suffice and results therefrom should hold. Shome (1978, 1985) applied the general equilibrium framework to India, Indonesia, Malaysia, the Philippines, Singapore and Thailand. In all cases capital bore 100 percent of corporate tax incidence except in India and Singapore where it was slightly less than 100 percent.

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lower income groups across the country. However, within this list of about 45, each state can select 12 items of 'local importance' that represent differences in consumption baskets across states. Thus calibrating exempted items carefully to the consumption basket is crucial. Errors in base design could occur otherwise.

When a VAT was being designed for South Africa just before their regime change, typical exemptions for fresh bread and vegetables were being included. A visit to the homelands that were reserved and confined for the African population who were invariably located in arid and semi-arid areas revealed that fresh bread and fresh vegetables were atypical of the local population's consumption basket. Instead, entry followed by simple observation in corner stores revealed that they consumed mily meal, a cereal product mashed with water and canned vegetables. These were therefore recommended to be exempted and the authorities complied.

[7] In his model, since capital was mobile between both sectors, the tax incidence is on capital as a whole, without any distinction between capital used in corporate and non-corporate sectors.

Despite the Harberger-Musgrave debate, Harberger's approach helped in the acceptance of his results as the preferred ones, and contributed to the advancement of the CGE framework that could be viewed perhaps as a blow-up of his approach into many sectors and many factors. Nevertheless, within the Harberger context, Shome (1975) in a caveat, noticed that Harberger's non-corporate sector comprised real estate, agriculture and a small item called miscellaneous repair services. Thus he introduced a third factor, land, and assumed that it is used exclusively in the non-corporate sector. The recognition of this third, specific factor led to diminution of Harberger's results since, now, unlike capital and labour, land—being a factor that was unable to move from one sector to another—bore a significant incidence of the corporation income tax. Ratti and Shome (1977) went on to show that Harberger's results on the incidence of taxation depended on the attitude towards risk in the presence of risk and uncertainty. Thus, even a general equilibrium framework stopped short of clinching the matter of differential incidence of various taxes on those who would ultimately bear them. The same caveats continue to hold for the CGE framework that has otherwise advanced in its analytical scope. It provides useful insights, for example, into queries such as: if the same revenue were to be raised from a menu of taxes, what would the differential effects be of such an equal revenue raising measure on incomes or deadweight loss from those taxes. Other such examples of the usefulness of the CGE approach could also be provided.

c. *Limitations of the general equilibrium framework*

The reason the above digression from consumption tax incidence was undertaken was to put in context comparable analysis, in the general equilibrium framework, of sales tax (or VAT) incidence.[8] Shome (1981) found that, even in the presence of a third, specific factor, the percentage reductions in the earnings of the three factors of production were the same for a *general* tax such as an income tax or a general sales tax. It was only in the case of partial taxes such as partial factor taxes (for example the corporation income tax on corporate capital) or partial commodity taxes (such as selective excises) that any neat outcome of tax incidence on various factors of production broke down. That early conclusion, therefore, was simple in its implication. The VAT, which is a general sales tax, was neutral to the income tax in its incidence on individuals as owners of different factors of production. In this context, the burden on consumers of different products is not relevant or tracked; rather, it is the tax burden that individuals bear as factor owners that matters, and the answer was that the VAT was neutral to the income tax. It is noteworthy that a few countries including Uruguay proceeded to replace their income tax with a VAT. And some other Latin American countries such as Argentina experimented with the idea, at least shifting their focus towards the VAT and away from the income tax by lowering the latter's rates and raising the thresholds.

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[8] The VAT is essentially an administrative device for the retail sales tax. A retail sales tax is collected exclusively at the retail level. The same tax is collected under the VAT in a sequence through the production/distribution chain.

d. *VAT burdens in a life cycle framework*

Moving forward in time though not in the CGE context, an intelligent argument that has been put forward by Caspersen and Metcalf (1993) to demonstrate that a VAT is not necessarily regressive is when one considers lifetime income as the VAT base. The crux of the argument is as follows.

> Invoking Friedman's (1957) permanent income hypothesis as well as life-cycle considerations, economists have recognized that annual income may not be a very good measure of an individual's potential to consume. With perfect capital markets, individuals should be grouped according to the present discounted value of earnings plus gifts received. This theory makes the difficulties with the annual incidence approach readily apparent. People tend to earn the highest incomes in their life around middle age and the lowest incomes in their youth and old age. Consequently in a cross section (annual) analysis, lower income groups are likely to include some young and elderly people (as well as some people with volatile incomes who have obtained a low realization) who are not poor in a lifetime sense. Similarly, higher annual income groups are likely to contain some people at the peak of their age earnings profile for whom peak earnings are a poor measure of annual ability to consume. (pp 4-5)

This view has little to do with the structure of the tax itself but the fact that, over a lifetime, income is smoother than when examined at different points during a life because dissaving at earlier stages gets compensated by saving in later periods. Obviously, therefore, the base of the tax from which the VAT is collected is argued to remain even over a lifetime; hence the VAT becomes proportional. Caspersen and Metcalfe (1993) use US income data from a panel study and consumption data from a consumer expenditure survey to derive two different measures of lifetime income. They use current consumption as a proxy for lifetime income[9]. They first find that using income as the tax base reveals VAT as a regressive tax, the tax burden decreasing from 6.5 percent to 3 percent from lowest to highest decile. But, using current consumption, or proxy for lifetime income[10], they demonstrate that, over a lifetime, a VAT would be proportional. And, if food, housing and health expenditures are zero rated[11], the VAT becomes somewhat progressive.

Subsequently, the Institute of Fiscal Studies, UK, used the same lifetime income argument to check if any increase in the VAT rate would increase the regressivity of

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[9] However, as is to be expected, mean lifetime income (annualized) is somewhat higher than current consumption.

[10] By their definition, lifetime income can be conceptualized either as the present discounted value of the stream of inheritances (and gifts) received plus earned income (including transfers); or as the presented discounted value of consumption and bequests made.

[11] Zero rating in a VAT implies that the product output is taxed at zero rate and any VAT paid on inputs is also refunded. Exemption in a VAT implies that the product is zero rated but VAT paid on inputs is not refunded.

the UK VAT.[12] While they admit that the VAT is regressive with respect to household income, they use the argument that current incomes can be volatile but lifetime incomes determine consumption. Hence they reexamine the VAT burden across deciles against household expenditure and find the burden to be almost proportional. To quote:

> ….. looking at a snapshot of the patterns of spending, VAT paid and income in the population at any given moment is misleading, because incomes are volatile and spending can be smoothed through borrowing and saving. Consider a student or a retiree: their current income is likely to be quite low but their lifetime earnings could be relatively high. The student may borrow to fund spending, whilst the retiree may be running down savings. Similarly, many people in the lowest income decile will be temporarily not in paid work and able to maintain relatively high spending in the short period they are out of the labour market. Because their spending is higher than their current income, theses people will be paying a high fraction of their current income in VAT. Similarly, those with high current incomes tend to have high saving, and so appear to escape the tax, but they will face it when they come to spend the accumulated savings. Because of this 'consumption smoothing', expenditure is probably a better measure of living standards (and households' perceptions of the level of spending they can sustain). (p.7)

But this crucial assumption that current consumption could be safely used as a proxy for lifetime income has been subsequently critiqued by Tax Research UK (2010). They question the practicality or feasibility of expenditure smoothening irrespective of incomes. Thus, they argue:

> ….. it would seem very obvious that their focus when assessing regressiveness should have been on the poorest and that in coming to any conclusion the appropriateness of their assertion should have been tested for applicability to that population, in particular. The Institute for Fiscal Studies did not do this. To have done so they would have needed to check that those on the lowest levels of income had savings and enjoyed reasonable access to borrowing facilities. If neither condition held true then clearly they could not make their claim that expenditure can be smoothed irrespective of income. If the poorest cannot smooth their spending then the impact of a VAT change on those with lowest income – where regressiveness is naturally of greatest concern – would have to be tested with regard to income. (p.8)

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[12] http://www.ifs.org.uk/budgets/gb2009/09chap10.pdf. The UK VAT rate did several flip-flops during the global recession, first a decrease from 17.5 percent to 15 percent from December 1, 2008 to December 31, 2009 as a part of the fiscal stimulus of the last (Labour) government, followed by a rise to 20 percent from April 1, 2011 as a part of fiscal tightening of the new (Conservative-Liberal coalition) government formed in May 2010.

They become direct in their criticism:

> The IFS instead implies that the child, their parent and the pensioner can each place their suffering in the context of their lifetime, whatever the current deprivation may be…..That, unfortunately, suggests both a serious lack of intellectual rigour on the part of the Institute for Fiscal Studies in making this claim and a serious lack of understanding on their part of income distributions and the impact of changes in spending patterns in society when some have little or no savings and almost no access to alternative financial resources. (p.10)

They supplement their argument by showing data that the propensity to save falls as disposable household incomes decline in the UK including the practical information that "almost 5 million households in the UK have access to only rudimentary financial services, and certainly not to regular borrowing facilities". They claim that it is not just the lowest decile but the lowest quintile that suffers from this problem. On the impact of zero rating, they indicate that items under the zero rate such as most foods, children's clothes and basic necessities are consumed by all income groups. However, while all discretionary spending by lower income groups is subject to the VAT, items of discretionary spending by the rich are VAT-free. They include private healthcare, private education, leisure travel, second homes, and financial services products. This exclusion they relate to the low VAT productivity in the UK. Thus they suggest that the "VAT is likely to be seriously regressive because VAT expenditure in the highest quintile group is likely to be much lower than the IFS assume." (p.12)

It is not as if the possible adverse distributional effects of a VAT have not been criticized in the US. Gravelle (2011) of the US Congressional Research Service has renewed the debate by demonstrating starkly different distributional patterns for an income tax and a VAT of equal yield, allocating the VAT across quintiles to reflect consumption patterns of those quintiles. The explanations come from familiar sources: VAT is a flat tax; and the declining ratio of consumption to income. He critiques the use of consumption as the base as a proxy for lifetime income for two reasons. First, since income reflects the full capacity to pay taxes, consumption, which is a part of that income, could only represent a partial use of that capacity. Second, a comparison of a VAT with other taxes that use income as the base would not be possible: a comparison of burdens is possible only if all taxes being compared use income as the base of calculation. He adds a third argument against the premise that permanent income is a better tax base for analysis than an 'annual snapshot'. There would be a difference in the outcomes of using permanent—over annual—income as the base for calculations only if transitory income was of significant importance. But he cites Cronin (1999) and Burman, Gravelle and Rohaly (2005) to indicate that they "provide evidence that transitory income effects are of minor importance" (p.105). Therefore, in effect, he finds no merit in distinguishing the two approaches.

Another US tax package exercise for replacing some taxes for others found the VAT to be regressive. This was a simulation by the Congressional Budget Office (1992) at the

request of Senator Bentsen. It worked out the effect on families' after-tax incomes of substituting a combination of a flat-rate income tax and a VAT for the prevailing federal income, payroll, and excise taxes (excluding on tobacco and alcohol) such that the federal deficit remained the same. It assumed that the VAT would raise prices of taxable goods and services and the burden of the VAT was allocated in proportion to family consumption of those taxable items, essentially using an early approach of family budget incidence as surveyed earlier. However, as one innovation, the study recognized that the higher prices of VAT-able items raised the aggregate price level, in turn triggering social security and supplemental security income benefits. The simulation incorporated these income gains essentially among lower income groups, those reducing somewhat the bias of any outcome towards regressivity.

The simulation also distributed the benefits of eliminating income—including corporate—tax, payroll tax and excises across households under the subsumption that, "Although some federal taxes are paid by corporations, non-corporate businesses, and even nonprofit institutions, the economic burden of all taxes ultimately falls on families and individuals (p.2).[13] The benefit of eliminating the corporate income tax is distributed from corporate shareholders to all recipients of capital income, that is, those who receive rents, interest, dividends and realized capital gains. Nevertheless, note that this is not a CGE approach in the sense that there is no possibility of the corporate tax being shifted to labour or land.

The overall finding of this simulation is that the tax substitution package is regressive. After-tax income for families in the bottom fourth-fifths of the income distribution would decrease. The largest decrease was suffered by the lowest fifth. After-tax income for the highest fifth would increase. Part of the result was accounted for by the fact that the bottom fifth did not pay much social security or income tax before the change, hence received little benefit from their elimination. Further, low income families who had to use all income and accumulated assets to purchase consumption items, would now have to pay VAT on them. Thus the effective overall tax rate for the bottom quintile would rise by 20 percentage points; it would also rise for the three higher quintiles though by smaller proportions; the tax rate would decline for the top quintile.

In perhaps the most recent endorsement of the VAT, Graetz (2008) has proposed a tax switching package that he terms a Competitive Tax Plan (CTP) that could enable the exclusion of 100 million income tax returns from the bottom. Thus, his package would eliminate the income tax for most Americans, lower the income and corporate tax rates, with revenue replacement from a federal consumption tax on goods and services. Given the package's wide dimensions and the void in the tax structure that a VAT could fill in the US, it is worth summarising Graetz's CTP:

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[13] A similar argument was made by Shome (1979) where he essentially posits that the corporation income tax exists mainly as a conduit and facilitator in the collection of the individual income tax. This parallels the concept that the VAT is a collection mechanism for a retail sales tax, the latter collected only *at* the final retail point, while the former being collected along the way of production and distribution of the item *upto* the final retail stage.

- A federal VAT rate will be between 10-14 %. Single rate is preferable. Exempt turnover below $100,000 per year (65% of the 25 million existing businesses). A credit invoice method will be used. There would be a few but realistic exemptions.

- The income tax will exempt incomes below an indexed $100,000 per family ($50,000 per individual). This will leave out 150 million taxpayers. Tax rate would be in the range of 20-25%. To minimise political diffidence, limited deductions would be allowed for selected items such as charity, large medical expenses, (may be) home mortgage interest, state and local taxes. Employers are to enjoy deduction for retirement savings schemes and health insurance for employees until a national health insurance system is set up. Standard deduction, personal allowances, other tax credits are to be eliminated.

- The Alternative Minimum Tax (AMT) would be abolished.

- Capital gains tax could be raised to the income tax level of 20-25% or be retained at 15%.

- Dividend tax rate of 15% could be retained.

- Corporate tax rate would be set at 15%, or a maximum of 20%. Small businesses with less than $100,000 turnover are to be exempted. He recommends eliminating differences in the calculations of book profits and profits for tax calculations. Any difference—depreciation, R&D, foreign income and taxes—should be made explicit.

- Estate and gift taxes should be retained while raising exemptions and protecting farmers and small businesses.

- The social security tax structure would have to be retained until a new financing structure for national social insurance—retirement, Medicaid, Medicare—is worked out.

Certainly the package is worth analyzing in terms of its practicality reflecting the fundamental changes to the US tax structure, and the seemingly potential benefits through enhanced simplicity, that are embedded in it.

e. *Distribution effects of the VAT in tax-expenditure packages*

Finally, therefore, complementary expenditure policies that might alleviate the regressivity of the VAT have been considered. They suggest that targeted expenditure programs may be put in place when a VAT is introduced. Such exercises are able to demonstrate positive distribution outcomes but it remains that these are tax-expenditure mixes and not VAT by itself. Several studies have been carried out for Latin America. Engel et al (1997) found that radical modifications of the 1994 tax structure of Chile, such as raising the VAT from 18 percent to 25 percent affect the after-tax distribution—Gini coefficient—only slightly. Instead, high yield indirect taxes can be

used for targeting of expenditures in such a way that income inequality could be reduced by 80 percent while, a low yield progressive income tax that they also modeled accounted for the remaining 20 percent of the reduction in income inequality. Thus they emerge as preferring proportional taxes once they are combined with good redistribution policies. Hence they indicate that taxes should be selected for their efficiency and ease of collection rather than for distributional considerations since the latter could be addressed through expenditure policies.

Acosta-Margain (2011) tried a similar exercise for Mexico. He evaluated a 2009 proposal to the Mexican Congress of a 2 percent increase in the VAT rate including currently untaxed food and medicine. While opponents emphasized the regressive effects, supporters pointed to the progressivity of the complementary expenditures that were a part of the bill to benefit the bottom income quintiles. Thus the regressive tax effect is offset by the progressive expenditure effect. In fact they argue that there should be little reason, therefore, to exclude food and medicine from the VAT.

These findings are generalized for more Latin American countries by Cubero and Hollar (2010) in a study where they analyse income distribution effects of taxation and social spending in Central America. They find that the distributional effect of taxation is mildly regressive while the redistributive effect of social spending is large and progressive. In all the countries of the region, therefore, there is a net progressive redistributive effect as a result of a particular mix of tax-expenditure policies. Raising tax revenues and devoting it to social spending would undoubtedly improve the incomes of the poorest households. Hence, in all these cases, when a revenue productive VAT is paired with targeted expenditure policies, the outcome is better for redistribution than is a narrowly based progressive income tax structure. One point seems to emerge from such studies, therefore, that a VAT can improve redistribution only if its revenue is used to carefully target social expenditure towards lower income deciles. Otherwise a VAT would be regressive in its effects.

3. Why countries continue to use the VAT

Authors have pointed to the consideration that possible adverse distribution effects of the VAT are not prohibitive in reflection of its positive characteristics. Thus the VAT is preferred over the income tax in particular economic environments and for specific reasons such as its revenue productivity, its simple structure and legal interpretation if appropriately designed, its ease of administration, and the lower likelihood of its evasion in contrast to that of the income tax (Tanzi and Shome, 1993).

a. VAT's revenue productivity

Starting with the VAT's revenue productivity, Shome (1992, 1999, 2002, 2003) undertook extensive surveys of tax structures and revenue trends. Among his observations was one that pertains to the revenue productivity of the VAT. The relationship between a percentage VAT rate and its revenue implication in terms of

GDP has been referred to as the Shome Index, reflected in the context of India and Latin America (Government of India, 2009).

Thus, if the general rate of the VAT is x%, then the achievement of a revenue intake of ½ x% of GDP is not impossible. The revenue achievement of ½ x% of GDP should be possible if: (1) the VAT base is broad with few exemptions, (2) the general VAT rate is not impeded by too many accompanying lower rates, (3) tax administration is transparent, (4) social norms do not erode taxpayers' tax compliance, and (5) their compliance costs are not high.

This has been observed in Chile and New Zealand whose VAT bases have been proverbially broad. With an 18% VAT rate, Chile's VAT revenue was almost 9% of GDP at one point, comparable to New Zealand's. Chile taxed even unprocessed food and fresh vegetables. In New Zealand, even birth and funeral services were taxed under the VAT so that the VAT acquired the characteristic of a tax that fell on the taxpayer from birth to death.

If the VAT base is narrow as is the case in the U.K., then the Shome Index would reveal a small percentage collection in terms of GDP. Thus, in the U.K., with a VAT rate of 17.5%, the revenue intake had hovered around 6%. In terms of the Shome Index, at an x% VAT rate, the VAT revenue in terms of GDP has thus been nearly as low as 1/3 x%. In other countries, say with some other characteristic such as low compliance, or poor administration, a similar outcome would be experienced though, in the UK, it reflects the VAT structure.

In most countries, VAT revenue hovers between 1/3 x% and ½ x% of GDP. The strategy for countries that have an x% VAT rate should invariably be to design the VAT structure and enhance its administration in a way that the achievement of ½ x% of GDP in revenue is feasible.

b. Evasion—VAT versus income tax

Therefore, one aspect of the VAT that had to be addressed and concerned Shome right from the start was the extent of its evasion, in particular, in developing countries. This is because the regressivity or progressivity of the VAT would be affected unequally across income groups if the extent of evasion varies across goods and services and if the prevalence of those goods and services in the consumption basket varies across income deciles, as is likely to be the case. He studied this across Latin America, two instances of which were Mexico and Colombia. Aguirre and Shome (1988) attempted an elaborate exercise using the input-output tables for Mexico of determining the potential VAT base and, therefore, potential VAT revenue and compared it with actual revenue. Subsequently, Shome (1995) and Haindl et al. (1995) carried out a similar exercise—comparing potential with actual—for Colombia for the VAT and income taxes respectively in the same extensive study charting fundamental tax reform for

Colombia.[14] They found that "VAT revenue collected in 1988 was roughly two thirds of the potential (or theoretical) collections," (p. 5) and, for income taxes, "tax evasion among individuals has been particularly severe, increasing from about 38 percent in 1987 to 51 percent in 1991. However, corporation income tax evasion fell from 30 percent to 19 percent." (p. 16) Thus, individual income tax evasion was clearly higher than VAT evasion despite a relatively complex prevailing VAT structure. The bias in favour of using a VAT was thus revealed, a matter that is generally agreed by consensus and experience as well.

The UK's VAT administration is focused primarily on minimizing the VAT Gap, or in containing the difference between potential and actual VAT revenue. A detailed methodology for calculating the VAT Gap has been developed over the years based on expenditure surveys and input-output tables parallel to Shome's exercises for developing countries. The UK compares its 'top down' approach based on economy level indicators with a 'bottom up' approach based on sector-wise examination and investigation.[15] Subsequently, the OECD broadened the interest in the VAT Gap by examining and comparing the approaches used in its member countries in tracking the VAT Gap. By contrast, any analytical exercise to calculate the income tax gap is far more challenging in peeling out legitimate revenue declines as a result of tax incentives and such provisions. Thus the tax gap for income tax in the UK is calculated in a far more simplistic method in the sense that it is the difference between what is actually collected and what has been identified—rather than a true potential—by the administration as should be collected. Here again, the VAT wins in terms of popularity.

Another aspect to be considered is the burden of compliance costs of a tax on the taxpayer. The Netherlands developed a methodology for calculating compliance costs. The UK has also been following this approach: the UK Government has to report to its parliament the compliance cost of every change in the tax structure in its fiscal budget and explain why a particular policy was selected over others from a compliance cost point of view. Some emerging economies such as Chile, Colombia, South Korea and others also have opted for this course. The consensus view is that the compliance cost attributable to a VAT policy change is often lower than that attributable to an income tax policy change. Indeed, it is arguably claimed that this is one reason why VAT changes come in more often than income tax changes. Indeed, on the matter of the extent of compliance costs, therefore, the VAT is preferred over the income tax.

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[14] VAT potential was calculated from input-output tables of the economy and compared with what was actually being declared through VAT returns. Income tax potential was calculated through a complicated method reflecting income tax law.

[15] The bottom up approach is especially useful in detecting missing taxpayers. The UK discovered this particular phenomenon, termed 'carousel fraud', in the context of VAT operators within the VAT chain who collected the VAT from their purchasers but did not transfer the collection to the exchequer. This kind of evasion is likely to be carried out in connivance between the two parties, the gains from evasion being divided between the two.

4. Concluding remarks

It is safe to conclude, therefore, that the distribution effects or incidence of the VAT is no less than a deeply contentious issue. We have to distinguish three aspects. First is the approach of distribution studies that tends to yield a result of regressivity; second is the CGE approach that views the distribution issue as one of 'incidence' among factors of production that subsumes the distribution of burdens on consumers; third is the examination of distribution effects over a life cycle that finds the VAT to be mildly progressive, but it is questioned for the lack of feasibility to spread out consumption irrespective of income in particular for low income groups. Essentially, all of the above approaches cannot demonstrate that the VAT is not regressive or adverse for income redistribution. To counter this outcome, arguments have been made that, in practice, when a VAT is introduced or replaces an income tax, targeted expenditure policies are likely to be put in place. These expenditure policies can be constructed in such a way that the overall tax-expenditure package is not regressive; it may even be progressive. To sum up, the VAT by itself, is indeed likely to be regressive.

Countries nevertheless opt for the VAT as can be gleaned just from the number of countries that have adopted it. This is because, compared to the income tax, it is simpler to design and administer, its compliance is likely to be higher, or evasion lower, the compliance cost for the taxpayer is likely to be lower, and it is revenue productive and more predictable in terms of revenue generation. Last, but not least, in a fiscal emergency, it can be more easily increased in terms of the tax rate since the impact is likely to be less directly observable on incomes and, usually, it can be more quickly implemented than any change in the income tax which may require a longer legislative process. Thus, the VAT remains a more popular tax among policymakers.

The one major country that has not yet introduced a VAT despite much research is the US. As seen above, it remains deeply controversial there. Perhaps the most recent tax switching proposal, scaling back the corporate and individual income tax rates and raising the threshold level, and replacing lost revenue with a comprehensive tax on goods and services, is by Graetz (2008). This package is worth examining in particular since it is claimed to be able to eliminate 100 million income tax returns from the bottom. While excluding small taxpayers under all circumstances may not be a worthy objective (Shome, 1993), it is well-known that the US income tax system is burdened with too many tax returns while, in other countries such as the UK, less than half the taxpayers have to file income tax returns, the majority being subject only to tax deduction at source as a final tax unless the taxpayer prefers to claim a refund. The introduction of a VAT or GST in the US an important remaining task for US tax policy experts Shome (2009a, 2009b). And, for India, which is preparing to introduce a comprehensive consumption tax reform – the Goods and Services Tax – comprising the central and state government levels, the distributional impact of the GST remains an important element in its appropriate design.

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