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# Does the X-Tax Mark the Spot

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# DOES THE X-TAX MARK THE SPOT?

## David A. Weisbach*

T HIS paper considers the design of a two-tier consumption tax, fo-
cusing on a variant proposed by David Bradford known as the x-
tax.[1] In generic form, a two-tier consumption tax is a tax on con-
sumption collected by imposing a progressive wage tax on individuals and
a cash flow or VAT-like tax on businesses with a wage deduction. Such a
system may be highly attractive on virtually every relevant front. Both
levels of tax, the individual wage tax and the business-level tax, promise
to be very simple to collect on a relatively comprehensive and uniform
basis. The comprehensive and simple consumption base means that com-
pliance and administrative costs will decrease and efficiency will improve.
By making the individual wage tax progressive, the distribution of the tax
burden can be made similar to that of current law.

The most well-known version of a two-tier consumption tax is the Hall/
Rabushka Flat Tax.[2] I have written previously that because of some of
the design features of the Flat Tax, it is unworkable.[3] For example, the
tax is readily avoidable, which means that many of the compliance cost
and efficiency gains are illusory. Avoidance efforts are themselves costly
and in addition, the tax base becomes less comprehensive, raising the
overall tax rate and narrowing the base. The avoidance also changes the
distribution of the tax burden. Attempts to prevent avoidance lead to
additional complexity. While the Flat Tax may (or may not) be an im-
provement from current law, it does not fulfill the promise of the two-tier
consumption tax and is unlikely to be worth the substantial transition
costs of shifting to such a system.

While the Flat Tax may not be desirable, a two-tier consumption tax, in
theory, should be workable. After all, European VATs have been around
for years and are relatively comprehensive and simple.[4] A two-tier con-
sumption tax could be identical to a European VAT with a progressive

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tax on wages at the individual level and a credit for wages at the business level. There would be some differences in the two. The wage tax component would increase administrative costs because individuals (or couples or families) would have to file returns. Because the wage tax is progressive, we would have to face issues of determining the taxable unit, with marriage penalties and bonuses, the kiddie tax, and the like. In addition, the tax rate for an exclusive two-tier consumption tax would be higher than the tax rate on European VATs, which are used in conjunction with an income tax. Accordingly, the higher rate would put more pressure on the system. Because the x-tax would be the exclusive tax, there might be more pressure to create special rules or exemptions within the x-tax than there is with a typical VAT. While these differences and others would make a two-tier consumption tax more difficult to implement than a VAT, the overall picture is still one of a relatively simple and comprehensive tax that replicates current law progressivity.

This system, which I will call, for lack of a better name, a two-tier VAT, has not been widely proposed. Instead, proposals for two-tier consumption taxes generally alter one or more features of this system to achieve various goals. Other than the Flat Tax, the most widely known version of a two-tier consumption tax is David Bradford's x-tax.[5] Bradford continues to refine his proposal, so there is no single thing called the x-tax. Instead of a fixed proposal, it is more a series of ideas that are subject to refinement and improvement as we learn more. Nevertheless, there are clear differences between the x-tax and the two-tier VAT. In particular, the x-tax would use a subtraction method rather than a credit method, it would grant relief from the effects of transition and rate changes, and it potentially would be origin based.

In this paper, I will consider the design of two-tier consumption taxes. In particular, I consider whether two-tier consumption taxes should look like a two-tier VAT, the x-tax, or something different altogether. The focus will be on the major design elements in such a tax. I will not generally discuss broader issues such as the merits of an income tax versus a consumption tax, economic efficiency, or the distribution of the tax burden except insofar as they relate to design problems. For example, to discuss the design of a transition system, one must understand the eco-

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5. Another similar proposal is Charles McLure's Simplified Alternative Tax, or SAT. Charles E. McLure, Jr., *Economic, Administrative, and Political Factors in Choosing a General Consumption Tax*, 46 NAT'L TAX J. 345 (1993) [hereinafter *Factors*]; Charles E. McLure, Jr., *The 1986 Act: Tax Reform's Finest Hour or Death Throes of the Income Tax?*, 41 NAT'L TAX J. 303 (1988).

There are, of course, a wide variety of proposals for other sorts of consumption taxes. *See* ECONOMIC EFFECTS OF FUNDAMENTAL TAX REFORM (Henry J. Aaron & William G. Gale eds., 1996) and CONGRESSIONAL BUDGET OFFICE, THE ECONOMIC EFFECTS OF COMPREHENSIVE TAX REFORM (1997), *at* http://www.cbo.gov/showdoc.cfin?index=368sequence=0 (last visited Oct. 7, 2002) for descriptions and analysis of various proposals. The general economic effects of consumption taxation should be similar across these various taxes, but the implementation details, distributional effects, and some of the more detailed economic effects will vary. I will focus here exclusively on two-tier consumption taxes because of their potential to be attractive on so many fronts.

nomics of transition but the focus will be on applying the economics to design rather than developing new understandings of the economics. The broader issues are already well covered in the literature. Moreover, it is my belief that the implementation or design issues may very well be as, or more, important than broad overviews of economic efficiency or distribution that are based on grossly simplified versions of the tax.

The conclusions (using terminology for those not already familiar with it that will be explained below) are as follows:

1. The only difference between the subtraction method proposed for the x-tax and the normal credit invoice method used in a VAT is the information requirements. Credit-invoice VATs have more information passed between buyers and sellers of goods. With the same information, subtraction method VATs are exactly equivalent to credit-invoice VATs. The additional information makes credit-invoice VATs more flexible and more easily enforced than subtraction method VATs, but is costly to collect.

2. Open systems, under which a taxpayer may deduct the cost of a purchase when the seller need not necessarily include the cost, are intolerable. Open systems arise because of failure to collect information about the seller of goods and because of the choice to make the system origin based. Consequently, some sort of invoice system will be necessary. In addition, the tax must be destination-based.

3. The progressive wage tax will make the border rebates of a destination-based tax inaccurate. In particular, to the extent wages are taxed at a lower rate than the business level rate, border rebates will be too high. There is no simple way to adjust for this.

4. A destination-basis two-tier consumption tax violates the GATT. Either the United States would have to renegotiate or withdraw from the GATT, or accept an origin-basis tax. Neither choice is palatable, but renegotiation of the GATT is the better of the two. That is, one should not let GATT illegality force us into poor design choices without at least seriously attempting to modify the GATT.

5. If the system allows special exemptions or rates on goods or taxpayers, border rebates might be imprecise.
   a. A credit method system (or equivalently, a subtraction method system with sufficient information flows) can eliminate the effect of special rates at any level prior to the retail level, which means border rebates can be precise. This is well known for VATs. It also holds true for two-tier consumption taxes (subject to conclusion 3).
   b. Making border rebates precise eliminates the ability to have special rates at other than the retail level, thus reducing policy flexibility. The reduction in policy flexibility, viewed by most commentators as a good thing, is actually bad.
   c. Making border rebates precise increases compliance costs for everyone, even for goods that are never exported or imported, or

taxpayers not involved in a chain of production that leads to an export or import.

6. A subtraction method VAT can have precise border rebates only if all rates are either the full statutory rate or zero and it is closed (that is, it uses invoices to ensure taxpayers claim deductions only for payments to other taxpayers). If precise border rebates are a real constraint on policymaking so that Congress would not impose differential rates, a subtraction method VAT would be cheaper to administer.

7. Transition relief domestically is independent of the above. However, the choice of a destination-based system imposes a transition tax or windfall on inbound and outbound flows.

Section I gives a very brief summary of consumption taxes and VATs. Section II considers design issues in a two-tier consumption tax. Section III concludes.

## I. BACKGROUND

This section provides a limited background on consumption taxes. There is a vast amount of existing literature giving more details, so the review is brief.[6]

### A. BASIC STRUCTURE

The basic structure of the x-tax proposal is simple. The x-tax consists of two components: a business tax and an individual wage tax. Under the business tax, all businesses are liable for a tax at a single rate on sales proceeds less the cost of nonfinancial purchases from other businesses and payments to workers. Individual workers (except as they are otherwise directly engaged in business) are taxed only under the wage tax. The wage tax is imposed at graduated rates with a zero bracket and increasing rates, with a top rate that is the same as the business tax rate. As under the current system, there may be an earned income credit or other type of refund for low wage earners. The business tax rate and the individual rates would be set to meet the revenue requirements of the government and to meet the desired degree of progressivity.

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6. *See, e.g.*, William D. Andrews, *A Consumption-Type or Cash Flow Personal Income Tax*, 87 HARV. L. REV. 1113 (1974); Michael Graetz, *Implementing a Progressive Consumption Tax*, 92 HARV. L. REV. 1575 (1979); Alvin C. Warren, Jr., *Would a Consumption Tax Be Fairer Than an Income Tax?*, 89 YALE L.J. 1081 (1980); Joseph Bankman & Thomas Griffith, *Is the Debate Between an Income Tax and a Consumption Tax a Debate About Risk? Does it Matter?*, 47 TAX L. REV. 377 (1992); Alvin C. Warren, Jr., *How Much Capital Income Taxed Under an Income Tax is Exempt Under a Cash Flow Tax?*, 52 TAX L. REV. 1 (1996) [hereinafter *How Much is Exempt?*]; UNTANGLING THE INCOME TAX, *supra* note 1; THE VALUE-ADDED TAX, *supra* note 4; ECONOMIC EFFECTS OF FUNDAMENTAL TAX REFORM, *supra* note 5; CONGRESSIONAL BUDGET OFFICE, *supra* note 5. As most of the conclusions of this section can be found in a variety of other sources, I will not explicitly footnote each conclusion. As stated in the text, all of the material in this section can easily be found in prior literature, including that listed above.

How does this system measure consumption? The most obvious way to measure and tax consumption in an economy is to identify consumption purchases and tax them at the point of sale. Such a system would not exactly measure consumption—some consumption may not occur through market purchases, and we have to think carefully about durable goods that provide consumption services over time—but on a rough basis, such a system would measure all consumption in the economy.

A comprehensive retail sales tax works exactly this way. All consumption purchases are subject to a tax collected at the point of purchase. In practice, retail sales taxes tend to be on relatively narrow bases and do not approach comprehensive consumption taxes. But in principle, the tax could be comprehensive. To illustrate, if a retailer sells a widget to a consumer for $100, the retailer collects $20 of taxes, thereby imposing a tax on the consumption of the widget. The manufacturer or others involved in the production and sale of the widget would not have any tax responsibilities.[7]

VATs work basically the same way as retail sales taxes except that they are designed to prevent fraud and reduce the consequences of any remaining fraud. The way they do this is by collecting tax at each level of production.

To collect the VAT, therefore, we must know more about how an item is produced. Suppose then that our widget is produced in two (or sometimes three) stages. A manufacturer produces the widget using raw materials and labor. The labor costs are $50. The manufacturer then sells the widget to a retailer for $70. The retailer sells it to the customer for $100 and, in doing so, incurs labor costs of $20. If three stages are needed to demonstrate an argument, I will assume the manufacturer sells the widget to a wholesaler for $70 who then resells it to the retailer for $80. The wholesaler incurs $5 of labor costs while the retailer incurs $15 of labor costs. Broken down into three stages, the following summarizes the example (if only two stages are used, the wholesaler and retailer are combined):

| Assumptions | | | |
|---|---|---|---|
| | Manufacturer | Wholesaler | Retailer |
| Purchase Price | $ 0 | $70 | $ 80 |
| Sales Price | $70 | $80 | $100 |
| Labor Costs | $50 | $ 5 | $ 15 |

If we impose a VAT, the manufacturer would pay tax on the sale of the widget to the retailer at the 20% rate, for a tax of $14. The retailer would

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7. I am ignoring a subtlety. The total price paid by the consumer is $120, of which $20 is taxes. One could view the tax rate as $20/$120 or 16.7%. A subtraction method VAT might look like this because the VAT might be embedded in the price. This aspect of VATs and retail sales taxes is unimportant to the discussion in the paper, so I will ignore it.

also pay a tax on the sale of the widget to the customer at the 20% rate, for a tax of $20. Obviously, at this point, too much tax is collected. To offset the additional layer of tax imposed on the manufacturer, a VAT allows the retailer to deduct the cost of the widget, so that the net taxable amount to the retailer is $100 – $70, or $30. The tax paid by the retailer is now $6 and the total is correct ($14 paid by the manufacturer and $6 paid by the retailer for a total of $20). Thus, a system that taxes the cash inflows of businesses and allows deductions for purchases of inputs from other businesses (in other words, a cash flow system) is equivalent to a consumption tax. A VAT that measures cash flows, that is, a system that allows a deduction for purchases and an inclusion for sales, is called a "subtraction method" VAT. The following table summarizes the taxes imposed through such a system.

| Subtraction Method VAT – Base Case | | |
|---|---|---|
|  | Manufacturer | Wholesaler/Retailer |
| Sales | $70 | $100 |
| Less purchases | $ 0 | $ 70 |
| Net | $70 | $ 30 |
| Tax at 20% | $14 | $ 6 |
| Total tax collected |  | $ 20 |

On the sale of the widget from the manufacturer to the retailer, the deduction by the retailer and the inclusion by the manufacturer exactly offset. There is no net tax paid on the transaction. Consumers may not claim deductions on their purchases, so the only actual tax paid on a given consumption item is on the final retail sale, exactly like in a retail sales tax. The key difference between a retail sales tax and a VAT is that if a business does not participate in the system—refuses to pay taxes and does not claim deductions—the only taxes that are lost are the taxes at that level of production.[8] For example, if the retailer is a tax cheat and does not file tax returns, in a retail sales tax, all $20 of taxes are foregone. In a VAT, the government still collects taxes paid at prior levels, in this case $14.

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8. In fact, the overall tax on that item of consumption may be too high because of the tax evasion rather than too low. Suppose we add a third stage of production to our example. The manufacturer creates the widget from scratch and sells it to a wholesaler for $70. The wholesaler resells it to a retailer for $80, and the retailer sells it in the market for $100. Suppose also that the tax rate is 20% and that the wholesaler evades all tax liability and cannot claim deductions. The manufacturer remits a tax of $14 on the sale to the wholesaler. The retailer cannot claim a deduction on the purchase from the wholesaler (deductions may only be claimed on purchases from taxpayers) and must pay a $20 tax on the entire $100 on final sale. The total tax is $34, which is far higher than the $20 that should be due. The reason is that evasion by the wholesaler "breaks the chain" of offsetting deductions and inclusions. If, alternatively, the retailer claimed a deduction notwithstanding evasion by the wholesaler, the tax avoided would be only the $2 that should have been collected at the wholesale level.

Note that the system here ignores financial flows. There is no reason to tax pure financial flows because economy wide they exactly offset. That is, every cash payment on a financial transaction matches a corresponding receipt somewhere else. A system that ignores financial flows, such as a VAT (and the x-tax), is known as an R-based tax. Consumption can be measured by including financial flows through a system known as an R+F-based tax.

One can view the decision to use a VAT instead of a retail sales tax as a decision to incur the greater administrative cost of collecting tax at each level of production to get the benefits of increased compliance. The additional administrative cost of a VAT is less than it might seem, however. Businesses should know their cash flows anyway, so the compliance costs of a subtraction method VAT may not be that high. In addition, retail sales taxes need anti-cascading rules. The rules prevent a retail sales tax from being imposed on the sale by a retail establishment to another business. They usually work by requiring businesses purchasing from retail establishments to have special identification, which creates compliance costs. Therefore, the additional compliance cost of a VAT over a retail sales tax may not be that high.

The x-tax is only one short step from the subtraction method VAT. In a subtraction method VAT, no deduction is allowed for wage payments to workers because no tax is imposed on the workers for the wages they receive. Deductions are only used to prevent duplication of the tax at different levels of production and are not necessary for wages. In the x-tax and similar two-tier consumption taxes, workers are directly taxed on their wages and, therefore, businesses may deduct wages. The advantage of doing this is that wages can be taxed at a progressive rate in accordance with the individual circumstances of the worker. The disadvantage, of course, is that individuals must now file returns. Because the only item on their returns is wages, however, the idea is that this additional requirement would not increase compliance costs too dramatically.[9]

To illustrate with an example, the manufacturer would have receipts of $70 but deduct its labor costs of $50. Its net taxable amount would be $20 and it would pay a $4 tax. Its employees would have total wage income of $50. If they are all taxed at a 20% rate, they would pay a tax of $10.

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9. I will not explore these issues here, but wage tax returns will raise some issues. For example, if wages are taxed at a progressive rate, there will be marriage penalties and bonuses. In addition, the wage tax will raise the possibility of special exemptions and deductions at the individual level, such as the charitable deduction or any of the plethora of tax credits found in current law. Therefore, the wage tax component of the x-tax may significantly increase complexity.

Note also that an equivalent way of implementing the system is to give workers a credit based on their individual circumstances. While this equivalence has been noted, the system has not been widely explored. A credit system would give workers an incentive to ensure that their businesses are taxpayers as they could be required to identify the business when claiming the credit. In addition, workers would not want to avoid filing their returns. Instead, they would affirmatively want to file. Also, a credit system may have fewer problems complying with the GATT. A credit system, therefore, may have many attractive features and may be worth exploring.

They are, however, taxed at a progressive rate with the highest possible rate being the manufacturer's rate of 20%. Therefore, the total tax paid by the workers will be $10 or less. The same thing happens at the retailer level. The net result is the same as if a normal VAT was collected but workers received a progressive wage subsidy. The following summarizes the tax liability under the x-tax:

| X-Tax Base Case | | |
|---|---|---|
| | Manufacturer | Wholesaler/Retailer |
| Sales | $70 | $100 |
| Less purchases | $0 | $70 |
| Less wages | $50 | $20 |
| Net | $20 | $10 |
| Tax at 20% | $4 | $2 |
| Wages | $50 | $20 |
| Tax at 20% or less | $10 or less | $4 or less |
| Sub-total | $4 + $10 or less | $2 + $4 or less |
| Total | | $20 or less |

## B.   What Is Supposed To Be Taxed In a Consumption Tax?

A VAT is obviously designed to tax consumption, but it is worthwhile to break this down into more detail. A VAT or any consumption tax consists of three components: a tax on wages or returns to labor; a tax on inframarginal or extraordinary returns to capital; and a tax on capital held on the date of the switch to the consumption tax. These three components are combined into a single system that taxes consumption.

The wage tax is easy to see under the two-tier consumption tax structure. While wage tax is more hidden in other types of consumption taxes, the equivalence to the two-tier structure should make it clear that all consumption taxes have a wage tax component. One subtlety of a two-tier structure is that only cash wages (plus any fringe benefits defined as wages) are taxed under the explicit wage tax component of the two-tier consumption tax. Rules could easily be added to capture some fringe benefits, but, inevitably, they will not capture all fringes (such as the value of a corner office or artwork on the walls). Fringes that are not taxed as wages would receive the same treatment that the receive in a normal VAT. The difference between fringes that are treated as wages and those that are not is that fringes that are treated as wages are taxed at a progressive rate.

The other two components of a VAT are less obvious but because they have been written about numerous times, I will only briefly summarize them here. First, consider so-called "inframarginal" returns. In a consumption tax, the normal return to capital is not taxed. This can be shown using the Cary Brown theorem that an immediate deduction for an

expense is equivalent to an exemption from taxation of the return to that expense.[10] Because consumption can be measured on a cash flow basis, consumption taxes effectively allow an immediate deduction for expenses and, therefore, exempt the normal return to capital. But suppose that an expense produces an extraordinary return. It is a one-time opportunity. The Cary Brown theorem relies on the taxpayer investing the tax savings from the immediate deduction in the same investment. If the investment is a one-time item, the taxpayer may not be able to invest the tax savings in the same item and get the same return. The tax savings then have to be invested at the normal rate of return. When it comes time to disinvest and pay the tax, the original investment in the special project will have grown faster than the investment in which the tax savings were put. The net result, it turns out, is to impose a tax on the extra yield from the one-time investment over the normal yield.[11]

The final component of consumption taxes is the tax on assets held at the time of transition. Suppose we made an unannounced, overnight switch to a subtraction method VAT.[12] Consider our retailer in the running example. Suppose the retailer purchased the widget from the manufacturer for $70 the day before the switch. The cost of the widget cannot be deducted from taxes under current law and instead goes into inventory. Overnight, we switch to a subtraction method VAT and the next day, the retailer sells the widget for the same $100. Under the subtraction method VAT, the retailer must pay tax on the proceeds. He cannot claim a deduction for the cost of the widget under the VAT because that cost was incurred before the VAT was put into place. He also cannot use his $70 income tax basis in the widget under the VAT because the VAT does not allow an offset for basis. The tax is on the full $70 investment even though the retailer has done nothing other than hold the investment overnight.

The retailer in this example might not bear the incidence of the tax. Prices might adjust overnight to take into account the imposition of the VAT. For example, if the tax is a 20% VAT, the widget might increase in value so that after paying taxes, the retailer still has his $100. But if this happens, those who hold positions in money will bear the tax (because their money will be worth less). Regardless of who bears the tax, the effect is basically the same—a one-time tax on existing capital.

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10. *See* E. Cary Brown, *Business-Income Taxation and Investment Incentives, in* IN-COME, EMPLOYMENT AND PUBLIC POLICY: ESSAYS IN HONOR OF ALVIN H. HANSEN 300, 301 (1948).

11. Examples illustrating this are abundant in the literature. *See, e.g., How Much is Exempt?, supra* note 6; Weisbach, *supra* note 3. There is some question of the size of inframarginal returns in the economy. For one of the few estimates, see WILLIAM M. GEN-TRY & R. GLENN HUBBARD, DISTRIBUTIONAL IMPLICATIONS OF INTRODUCING A BROAD-BASED CONSUMPTION TAX 28-29 (Nat'l Bureau of Econ. Research, Working Paper No. 5832, 1996). *See also* Joseph Bankman & Barbara H. Fried, *Winners and Losers in a Shift to a Consumption Tax*, 86 GEO. L.J. 539, 546-75 (1998).

12. The example is based on an example found in FUNDAMENTAL ISSUES, *supra* note 1.

The statement that the transition imposes a one-time tax on existing capital is technically correct but is also somewhat of an overstatement. To the extent there is untaxed appreciation under the current income tax, there is no consequence to switching (if tax rates are the same). All of the proceeds of untaxed appreciation would be taxable under either system. The additional tax on old capital from switching to a consumption tax is really a tax on existing income tax basis. Amounts attributable to basis are not taxed under the income tax but would be taxed under a cold-turkey switch to a consumption tax. It is as if all basis were wiped out.

The one-time tax on existing capital is not a one-time tax in the sense that it is collected all at once. Instead, it is collected over time as businesses sell pre-transition assets. It is, however, "one time" in the sense that the present value of the tax is the same regardless of when it is paid. Recall that a consumption tax does not tax the normal return to an investment. It follows that the present value of a consumption tax does not change with time. Therefore, the transition tax, although paid over time, is equivalent to a one-time tax on all capital. The fact that it is collected over time, however, is significant because it creates avoidance opportunities. It is not as if the government comes in overnight with shock troops and swoops up the transition tax, catching everyone off guard with no way to avoid it. Instead, taxpayers will have plenty of warning before it is collected, can choose when to pay it (because they can choose when to sell assets), and can devise schemes to avoid it.

The two-tier consumption tax divides the components of a consumption tax neatly. The wage piece obviously is to collect the tax on wages. The business tax piece, therefore, collects the remaining elements: the tax on inframarginal returns, the transition tax, and the tax on any returns to labor not treated as wages. Collection and avoidance problems with the business level tax in a two-tier consumption tax, therefore, can be viewed as problems with collecting the transition tax, the tax on inframarginal returns, and the tax on any hidden returns to labor.

Another method commonly said to be equivalent to cash flow taxation is known as yield exemption. Cash flow taxation, on the margin and outside of transition, imposes no tax on capital. Thus, simply not taxing capital—exempting the yield—and taxing only wages, produces the same result. The difference, however, is that using yield exemption would not tax inframarginal returns and, absent a specific transition tax, would not tax old capital on transition. It does not tax inframarginal returns because regardless of the return on an investment, there is no tax. It does not tax transition because on post-transition sales of goods, there is no tax, so the elimination of pre-transition basis is irrelevant. Therefore, we can view the difference between a pure wage tax and a more traditional consumption tax as the tax on inframarginal returns and transition.

Two-tier consumption taxes will rely to some extent on the yield exemption mechanisms. The usual place this shows up is for durable goods.

Durable goods produce consumption services to their owners over time. Under a pure cash flow system, the cost of durable goods should be deductible and the services provided by the goods should be taxed. Because it is difficult to measure the consumption services provided by a durable good, most consumption taxes simply disallow the deduction for the cost of the good and do not require inclusion of the consumption services. They are taxed under a yield exemption mechanism. They will not, therefore, be subject to the taxes on transition or on inframarginal returns.[13]

Finally, to understand the VAT or consumption tax base, we must consider how cross-border transactions are taxed. There are two basic approaches to the treatment of sales to customers abroad and purchases from abroad.[14] These approaches are known as the origin and destination bases. In a destination basis tax, sales to abroad are excluded while purchases from abroad are included. One can think of a destination basis tax as taxing domestic consumption regardless of where the good is produced. In a cash flow system, a destination basis tax corresponds to excluding the receipts from sales abroad and not allowing a deduction for the cost of purchases from abroad. In our example, if the consumer were abroad, the retailer would not be taxed on the $100 sale but could claim a deduction of $70 for its costs. The net result is no tax on the widget because the retailer's $70 deduction offsets the manufacturer's $70 inclusion. If, on the other hand, the retailer purchased the good from a foreigner, it would not be able to deduct the $70 cost but would bear a tax on the $100 sales, producing $20 tax on the item, exactly as if it were produced domestically.

In an origin basis tax, sales to abroad are included in the base and purchases from abroad are deducted. The tax can be thought of as a tax on the total amount of goods produced in the country. In our example, a $100 sale to a foreigner would be taxed the same as a $100 domestic sale. The purchase from a foreign manufacturer (who pays no U.S. tax) would be deducted just as if the purchase were from a domestic manufacturer, resulting in a tax on only the $30 of value added in the United States. Hence, an origin basis tax imposes tax on production in the United States regardless of the place of consumption and does not impose a tax on goods produced outside the United States.

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13. Note that this means that the tax on transition will not be comprehensive and, therefore, to the extent anticipated, will be avoidable through a shift to durable goods. *See* Weisbach, *supra* note 3 for a discussion.

14. For general discussion of international issues relating to consumption taxation, see Harry Grubert & T. Scott Newlon, *The International Implications of Consumption Tax Proposals*, 48 NAT'L TAX J. 619 (1995); Stephen E. Shay & Victoria P. Summers, *Selected International Aspects of Fundamental Tax Reform Proposals*, 51 U. MIAMI L. REV. 1029 (1997); Michael J. Graetz, *International Aspects of Fundamental Tax Restructuring: Practice of Principle?*, 51 U. MIAMI L. REV. 1093 (1997); Reuven S. Avi-Yonah, *The International Implications of Tax Reform*, 69 TAX NOTES 913 (1995); Reuven S. Avi-Yonah, *From Income to Consumption Tax: Some International Implications*, 33 SAN DIEGO L. REV. 1329 (1996); David Bradford, *Blueprints for International Tax Reform*, 26 BROOK. J. INT'L L. 1449 (2001).

These two approaches seem very different initially, but they are equivalent on the margin, at least if they are imposed uniformly, they are unavoidable, and one ignores transition or rate changes. The basic reason is that the law of one price ensures that internal prices in the various countries or the currency prices between countries adjust to net out any differences.[15] But this equivalence only holds on the margin for a uniform tax. For example, transition effects will be important and tax systems are inevitably avoidable, so the choice between destination and origin-basis is important.

There are also important implementation differences between origin and destination systems. For example, in destination systems, the government must monitor the borders. Deductions are allowed only for purchases from domestic suppliers and sales may be exempted only if they are truly to foreigners. In an origin-basis system, there is no difference between domestic and foreign purchases and sales, so less monitoring is needed. In an origin-basis system, however, the two sides to any given transaction may not match. A deduction by a purchaser may not be matched by an inclusion by the seller (because the seller may be abroad). This system is what I have previously called open. As I have suggested previously and will discuss below, open systems are not workable (except at high cost) because they create terrible avoidance problems. Therefore, there may be strong reasons to prefer one cross-border system over another.

A two-tier consumption tax works similarly to a VAT for cross-border sales and purchases. The major difference comes with outbound transactions in a destination-basis tax. Suppose our retailer in a destination-basis two-tier VAT purchases the widget from the manufacturer for $70 and sells it abroad for $100. The retailer, as before, is not taxed on the receipt of the $100, but may deduct the $70 cost. In addition, the retailer may now deduct the $20 wages it pays, so its net is a loss of $90 and it receives a tax refund of $18 (or uses the loss to offset other receipts). The manufacturer pays taxes on its $70 receipts less its $50 wage costs, or a net of $20 taxable receipts and a tax of $4. The workers collectively receive $70 in wages. Because the wage tax is progressive, they will pay $14 or less in taxes. The total taxes paid are the $18 or less paid to the government minus the $18 refund to the retailer. The net amount can be less than zero, depending on how progressive the wage tax is. Therefore, in a two-tier consumption destination basis tax, we will not generally be able to remove the tax at the border with precision. The end result is as if we had a perfectly operating flat rate, destination–based, subtraction method VAT, along with a progressive wage subsidy. It is the wage subsidy that cannot be removed.

For example, suppose that the wages of the particular workers who manufacture and sell widgets are taxed at 10%. Then the system results

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15. There are numerous examples showing this. *See, e.g.*, Bradford, *supra* note 14; Graetz, *supra* note 14, at 1107 n.15.

in a net refund of $7, which is the amount by which taxes on workers ($7) are less than the tax that would be imposed on them without progressivity ($14). This is computed as follows:

| Destination-Based X-Tax | | |
|---|---|---|
| | Manufacturer | Wholesaler/Retailer |
| Sales | $70 | $ 0 |
| Less purchases | $ 0 | $70 |
| Less wages | $50 | $20 |
| Net | $20 | ($90) |
| Tax at 20% | $ 4 | $18 refund |
| Wages | $50 | $20 |
| Tax at 10% | $ 5 | $ 2 |
| Total | | ($ 7) |

Whether it is because of the impossibility of removing the wage subsidy or other reasons, the GATT does not allow a two-tier tax to be destination-based.[16] The GATT allows rebates at the border for indirect taxes but prohibits them for direct taxes. Because of the wage tax, the x-tax would be a direct tax. This puts the x-tax in an unfortunate position. Either it is in violation of the GATT or it is origin based and hence open. My view is that if the United States is truly serious about the x-tax and wants it to be destination-based, there will be some accommodation at the international level. That is, for reasons discussed below, I believe that an open system is significantly inferior to a closed system so that as a policy matter, a destination basis system is far superior. We are better off seeking modification of the GATT than adopting an open system.

## C.  CREDIT METHOD AND SUBTRACTION METHOD VATs

In a VAT, only payments to other businesses are supposed to be deductible (leaving aside the possibility of an origin-basis system). The reason is that deductions act solely to prevent duplication of the tax on a good paid by the seller as it is produced for eventual consumption. For example, if a good is entirely produced and sold by a single entity, no deductions for costs would be allowed. Therefore, a deduction is appropriate only if the selling entity is a taxpaying business.

European VATs have a specific method to enforce this requirement. Rather than subtraction method VATs, European countries impose what is called a "credit-invoice" VAT. In a credit-invoice VAT, businesses get a credit against taxes for any taxes paid by the sellers of their inputs instead of a deduction. Conceptually, the credit and the deduction are the same—they both provide the same dollar offset against taxes for taxes

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16. *See* General Agreement on Tariffs and Trade, Oct. 30, 1947, 67 Stat. A-11, T.I.A.S. 1700, 55 U.N.T.S. 194. *See also* Shay & Summers, *supra* note 14.

paid by sellers of inputs. Both types of VAT use the same business-level measure of consumption. The key element of the credit-invoice VAT is the invoices. Under a credit-invoice system, a (business) buyer may only claim a credit for tax liability if the seller provides the buyer with an appropriate invoice showing the seller is a taxpayer. This ensures that deductions (credits) are matched with an offsetting tax by the seller.[17]

In our running example, the manufacturer faces the same treatment under both a subtraction method VAT and a credit-invoice VAT. In both cases, it pays tax of $14 on its $70 on receipts. The retailer, in a credit-invoice VAT, is potentially taxed on the $100 sales receipts, for a tax of $20. But if it gets an invoice from the manufacturer showing $14 of taxes paid on the sale, it can offset its $20 by the $14 credit, for a net of $6. The credit in this case is serving exactly the same function as a deduction—it reduces the retailer's tax by $14. The following table illustrates:

| Credit Invoice VAT – Base Case | | |
|---|---|---|
| | Manufacturer | Wholesaler/Retailer |
| Sales | $70 | $100 |
| Gross Tax | $14 | $ 20 |
| Credit | $ 0 | $ 14 |
| Net Tax | $14 | $ 6 |

Subtraction method VATs somehow claim to get along without invoices, but it is not entirely clear how this is supposed to work. Purchases under any type of VAT should only be deductible if they are from businesses, which means that business purchasers must verify that the seller is a business. For example, if the manufacturer purchased land from an individual, the cost of that land should not be deductible. Discussions of subtraction method VATs almost uniformly assume that purchases from exempt businesses are deductible but almost never discuss how, without an invoice requirement, businesses are to be denied deductions for purchases from non-businesses, charities, or foreigners. While one can imagine variations on invoice-type schemes that are not identical to the system used in European VATS, some basic invoice requirement seems inevitable.

One way to sort out the different types of VATs is by the amount of information provided by the seller to the buyer (and, of course, the use of the information by the buyer). One can imagine a continuous range of information, but we can conveniently divide it into three types. First is what I will call an open system, in which the seller provides no informa-

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17. In addition, the credit-invoice system creates a self-enforcement mechanism. Businesses that purchase wholesale goods or services will prefer sellers who can provide an invoice showing taxes paid on the goods. Buyers effectively act as tax enforcers. Sellers could create fraudulent invoices and the like, but it makes an underground economy much more difficult to sustain.

tion to the buyer.[18] Subtraction method VATs are typically assumed to be open.[19] In an open system, buyers will deduct the cost of inputs regardless of who supplies them. This means that inputs provided by non-taxpayers will be deducted.

Next is what I will call a closed subtraction method VAT, in which the seller must provide information to the buyer sufficient to verify that the seller is a taxpayer but no more.[20] Closed subtraction method VATs do not allow deductions for purchases from non-taxpayers. It is rare to see discussion of closed subtraction method VATs.[21] Discussions of the x-tax vacillate between open and closed versions. It is usually assumed that businesses may deduct purchases only from other businesses, but no invoice mechanism is provided.

Finally, there is what is typically called a credit invoice VAT, in which the seller provides the buyer with the exact amount of tax paid on the sale. This allows the buyer to obtain a credit (or a deduction of equivalent amount) for the exact amount of tax paid at the previous level. For example, if the prior level of production has a different tax rate than the buyer's rate, the credit-invoice method allows the credit to be matched to the seller's tax rate.

Any of these systems (as well as others) can be implemented through the credit system or the cash flow system. Credits and deductions are conceptually identical in the sense that for any given credit one can compute an equivalent deduction. Given the information provided in a credit-invoice VAT, a subtraction method VAT could be made identical.

The literature commonly treats these systems as different in ways unrelated to just the information requirements. For example, the literature describes subtraction method VATs as periodic taxes and credit-invoice VATs as transaction taxes. I am not entirely sure what these terms mean other than the information collected in a credit invoice VAT is more extensive and costly to collect. Both types of VATs aggregate transactions over some period into a single tax return. So both are based on transactions and both are periodic. The difference is only that the information collected in an open systems is so sparse that one can compute the tax on

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18. This is consistent with the description of "naive" subtraction method VATs. *See* THE VALUE-ADDED TAX, *supra* note 4.

19. *See id.;* VALUE ADDED TAX: A MODEL STATUTE AND COMMENTARY, A REPORT OF THE COMMITTEE ON THE VALUE ADDED TAX OF THE AMERICAN BAR ASSOCIATION SECTION OF TAXATION (Alan Schenk rep., ABA 1989); Carl Shoup, *Criteria for Choice Among Types of Value Added Tax, in* VALUE ADDED TAX IN DEVELOPING COUNTRIES (M. Gillis et al. eds., 1988). It is sometimes said that a credit-invoice tax is a tax on transactions while a subtraction method VAT is a tax on overall cash flows, but this argument makes no sense. To determine tax liability under a subtraction method VAT, one must aggregate the cash flows on all transactions.

20. McLure calls this a sophisticated subtraction method VAT. *See* THE VALUE-ADDED TAX, *supra* note 4.

21. In discussions of the x-tax, Bradford limits deductions to inputs purchased from businesses, implying a closed system. I am not aware of an invoice or information requirement, however, in any writings on the x-tax, so the issue remains ambiguous.

a gross, overall basis for a business without worrying about the status of individual purchases.

Another possibility is that subtraction method VATs are for some reason limited to allowing deductions at a single rate—either the purchase is from a business, in which case it is deductible, or it is not, in which case it is not deductible. Credit-invoice VATs, however, allow credits to match the seller's taxes, which means credits can be imposed at different rates. This seems entirely arbitrary. Deductions and credits can be imposed equivalently. The key is information. It is the information provided in the invoices that allows credit-invoice VATs to be applied as they are.

There are several reasons for carefully classifying VATs by information. First, open systems, as I have previously argued, raise significant design problems. When the system is open, there is no necessary tension between an inclusion by one party to a transaction and a deduction to the other. It is entirely possible that any given transaction can have one without the other and entirely likely that taxpayers will arrange their affairs so that they get the better end of this asymmetry. Open systems, for this reason, create serious compliance challenges; this may be the reason why they are essentially never used.[22] Second, the additional information provided by a credit-invoice VAT may be important when different rates or exemptions are imposed at different stages of production. Differential rates are almost inevitable even if policy makers can avoid favoring particular industries or products (which they will not be able to do) because of problems facing small or very small businesses and charities or other tax exempt entities. These issues are taken up immediately below.

## II.  DESIGN ISSUES

### A.  OPEN SYSTEMS

I have previously written that open systems are unworkable.[23] I will just summarize the argument here. As noted above, an open system can be defined as a system where deductions by one party are not necessarily offset by inclusions to another. Domestically, an open system is one without any invoice requirement. For example, a business might be able to deduct the purchase of land from an individual or inputs from an exempt business or from a charity. Internationally, origin systems are open because they allow deduction of purchases from foreign taxpayers. A closed system is the opposite—deductions are allowed only for purchases from other taxpayers. Invoice systems enforce this. Internationally, destination systems are closed.[24]

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22. Japan has an open subtraction method VAT but it is imposed at a very low rate. Moreover, Japan imposes an income tax as well, which may help compliance with the VAT. *See* Alan Schenk, *Japanese Consumption Tax After Six Years: A Unique VAT Matures*, 69 TAX NOTES 899 (1995).

23. *See* Weisbach, *supra* note 3.

24. Charles McLure is the only other commentator that I am aware of that has emphasized this difference in types of VATs. *See* THE VALUE-ADDED TAX, *supra* note 4. He

There are a variety of problems with open systems. One that has been widely discussed is that open systems create transfer pricing problems. In particular, origin-based systems require the government to police transfer prices because deductions for imports are not necessarily offset by inclusions to the importing party. For example, if a related party manufacturer is located in a low tax jurisdiction, the price paid for the item can be inflated, generating increased deductions This has been noted previously and those advocating open or origin-basis systems argue that the transfer pricing problem is present under current law and, however problematic, is viewed as tolerable.[25] Therefore, it should be tolerable in a two-tier consumption tax.

There are, however, other problems with open systems. For example, VATs and the x-tax ignore financial transactions—they are R-based taxes. They must, therefore, be able to distinguish real from financial transactions. If the system is closed, misidentifying a transaction has limited or no consequences. If the system is open, the consequences may be significant loss of revenue, creating tax planning opportunities.

For example, under an open system, taxpayers can choose whether a transaction is to be real or financial. Consider a taxpaying business and a non-taxpayer who enter a contract in which the business promises to purchase property for $100 in six months from the non-taxpayer (a long forward contract). The forward can be settled in cash or property at the election of the business. If the value of the property has gone up, the contract is settled in cash, creating no income to the business as the cash is from a financial transaction. If the value of the property has gone down, the contract is settled by delivery of the property (and subsequent resale by the business into the market), which produces a deduction for the business.

Half of the time (when the value of the property has gone down), the business will have deductible loss. The other half of the time, the business will have exempt gain. Thus, a contract that has no expected economic value will generate expected tax losses. Moreover, the parties can take offsetting short and long positions in the same commodity (a straddle). The parties would then have no risk and the business would always ends up with a deduction (on the long if the property value goes down and on the short if the property value goes up). Given that no risk is involved, businesses can use this transaction to eliminate business taxes at any time by simply doing it in greater size.

This transaction works only in open systems (that are R-based). If the tax were closed, the purchase of the asset from the non-taxpayer would not be deductible, thus solving the problem. European VATs, for example, do not have problems with this transaction as they are closed. Many

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uses the terms *naive* for open and *sophisticated* for closed. Because the terms *naive* and *sophisticated* imply judgments about the merits (which I ultimately conclude are correct), I use *open* and *closed* instead.

25.  *See, e.g., International Taxation, supra* note 1.

other problems with the taxation of financial transactions, such as the identification of interest, are the result of openness.

Similarly, open systems encourage "parking" assets at the individual level prior to transition. If, prior to transition, a business sells a machine to an individual (say on credit so no cash changes hands), it can use its basis against the sales proceeds. Immediately after transition, it can repurchase the machine and claim a deduction for the cost. The transition tax due to the basis wipeout and any tax on built-in-gain is thus entirely avoided.

Without further repeating prior arguments, it should suffice to say that the choice to have an open system would create significant tax planning opportunities. Avoidance opportunities increase deadweight loss and reduce revenues as taxpayers structure transactions to take advantage of the opportunities. Amendments to the tax rules to limit avoidance increase compliance costs.

Arguments for open systems are often based on simplicity—with no invoices to collect, compliance costs would be reduced. Open systems need not worry about the status of particular transactions and, therefore, can be computed by back-office accountants who merely total sales and subtract purchases without requiring ordinary employees to understand and assist with tax records. But these arguments are wrong once avoidance is taken into account. For example, because of avoidance opportunities, open systems may have to be nonrefundable (as proposed in the Flat Tax). If the system is nonrefundable, however, we would need a series of rules similar to those found in the current corporate tax to prevent transactions between corporations, such as corporate formations or mergers, from generating tax liability. The net compliance costs of an open system would be much higher than the costs of a closed system.

The problem, as mentioned above, however, is that current international trade rules do not permit direct taxes to be destination-based. The x-tax would have to be origin-based, and hence open, to comply with the GATT. International law puts us in a crazy spot. A VAT can be destination-based. If a VAT is amended to be a two-tier tax for the sole purpose of making it more progressive—a goal that presumably international law should not oppose—it forces the system to be origin-based and hence unadministrable. Moreover, the exact equivalent of the progressive wage tax—a wage subsidy paid directly rather than through the tax system— would not prevent the tax system from being destination based. A VAT with a separate wage subsidy, however, might be more expensive to administer than a two-tier tax. There seems to be no rationale for the restrictions imposed by the GATT and they are positively harmful.

The usual response in the literature is to assume that the GATT is fixed and conclude that two-tier taxes must be origin-based.[26] This seems to be the wrong response. An origin-based system would be significantly infer-

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26. *See* Shay & Summers, *supra* note 14.

ior to a destination-based system and the rules imposed by international law are crazy. The first response should be to renegotiate international law. The second response should be to ignore it and force a renegotiation. But we should not let ourselves be forced into design decisions that will impose significant costs on our population with no offsetting benefits to the international community.

## B. EXEMPTIONS AND DIFFERENTIAL RATES IN A VAT

It is often argued that credit-invoice VATs work better than subtraction method VATs when different tax rates (or exemptions) are imposed at different levels of production or on different goods.[27] Once again, this difference is solely related to assumptions about information provided between buyers and sellers rather than something inherent in the subtraction method and in the credit method. More information only allows more flexibility, but information can always be discarded. Therefore, anything that can be achieved with an open or closed subtraction method VAT can also be achieved with a credit-invoice VAT. Conversely, anything that can be achieved through a credit system can be achieved through a deduction system with the right information.

The policy question is whether it is worthwhile to collect the information. This question interacts closely with the decision to have an origin or destination-basis system. If the system is destination-based, it will rebate taxes at the border. These rebates must be reasonably accurate or trading partners will rightly claim that we are subsidizing certain exports (although we would be penalizing others because exchange rates would adjust on average). If there is a potential for differential rates on different producers, the system would need to collect the information to make border rebates accurate. If, on the other hand, all businesses are taxed at either the full statutory rate or zero, less information would be necessary and the system could be greatly simplified. The information collected could be limited to ascertaining that the seller of a good is a taxpayer rather than the particular tax rate applied to the good. But if the system is designed only to collect this limited information and policymakers still impose differential rates, border adjustments would become inaccurate, causing disputes.

Accurate border adjustments reduce policy flexibility. As explored below, systems that grant accurate border rebates tend to wipe out the effect of penalties or subsidies to pre-retail levels of production. Limitations on policy flexibility are often viewed as a good thing because policy flexibility will be used poorly by creating special rates and exemptions. But it cannot be true that any deviation from pure consumption taxation would be a bad idea. Few, if any, believe in pure, unrequited *laissez faire*. And, if the government is going to interfere in the economy,

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27. One can imagine differential tax rates imposed by a variety of other means, such as by activity, but the literature and existing tax systems tend to either impose them by taxpayer (e.g., small businesses) or by goods (e.g., essentials).

punishing some activities and rewarding others, there is no *a priori* reason why it should not implement these policies through the tax system. I view lack of flexibility as a real detriment.

Origin-basis systems leave more flexibility because they do not have border rebates. Basically, they look similar to current law, which incorporates a wide variety of differential rates and has little information passed between buyers and sellers of goods. Because an origin-basis system is open internationally, it may not make sense to collect any information domestically (allowing the system to be open domestically), as the problems with openness would have to be faced in any event. But note that collecting information such as in a credit-invoice system increases policy flexibility and may help with domestic avoidance problems. For example, if parking assets with non-taxpayers prior to transition is a problem, closing the system through an invoice mechanism may be helpful.

This approach to the problem is not conventional wisdom. Conventional wisdom is that different types of VATs have inherent differences. Below, I will consider the usual explanation of the differences in types of VATs and discuss how they can be considered information problems.[28]

Start with the simplest case: exemption of a retailer. Exemption or zero taxation (of both retail and wholesale businesses) is probably the most important case to study because some exemptions are almost inevitable. Virtually all VATs have some type of small business exemption.[29] In addition, charities and similar entities are likely to remain tax exempt in any tax reform and they often provide goods or services to consumers or to other businesses. Any reformed tax system must be able to handle exempt or zero-tax entities.

In a credit invoice VAT, if the retailer is exempt from tax, it does not get a credit for tax paid at prior levels. Therefore, the final tax on the item is collected at the prior production level, and exemption eliminates the tax at the retail level. In our running example, if the retailer is exempt from tax, it does not pay taxes on its $100 proceeds nor does it receive a credit for the taxes paid by the manufacturer on the $70 purchase. The manufacturer still pays $14 of tax.

An alternative is to allow the retailer to claim the credit—a system called zero rating—in which case all the tax on the item is eliminated. In the example, the retailer would get a $14 credit but pay no tax on its receipts. The $14 credit would offset the $14 of taxes paid by the manufacturer.

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28. *See Factors, supra* note 5; Malcolm Gillis et al., *Indirect Consumption Taxes: Common Issues and Differences Among the Alternative Approaches*, 51 TAX L. REV. 725 (1996) [hereinafter *Indirect Consumption*].

29. *See* Weisbach, *supra* note 3, at 646.

| Credit Invoice VAT – Zero Rating of Retailer | | |
|---|---|---|
| | Manufacturer | Retailer @ 0% |
| Proceeds | $70 | $100 |
| Tax | $14 | $ 0 |
| Credits | $ 0 | $ 14 |
| Net | $14 | ($ 14) |
| Total | | $ 0 |

In a subtraction method VAT, exemption at the retail level eliminates the tax at that level for the same reason that exemption at the retail level in a credit-invoice VAT eliminates the tax. The retailer would not be taxed on receipts but would also not be able to deduct its costs (not because the system is closed, but because the retailer is simply not a taxpayer—it does not file returns). The manufacturer will still pay a $14 tax on its receipts. The net result is the same as exemption in a credit-invoice VAT.

It is commonly stated that for a subtraction method VAT to eliminate all the tax on the item, the system must exempt businesses along the entire chain of production.[30] In our example, the manufacturer would have to be exempt to eliminate the $14 tax that it pays (and if the wholesaler is added, it too would have to be exempt). This is false. A subtraction method VAT could have a zero-rating type mechanism in which the retailer may claim a deduction for costs but not be required to include sales proceeds. Then the entire tax on the item would be eliminated exactly as in a zero-rated item in a credit-invoice VAT.

Now consider exemption at the wholesale level. With a credit-invoice VAT, exemption is actually worse than being taxed. The reason is that the exempt wholesaler cannot claim a credit on its purchases so there is a final tax paid at the prior level of production. In addition, subsequent purchases cannot claim a credit for any taxes paid at that level, so there is again a full tax imposed on the item. Exemption has the effect of imposing an additional tax on any item equal to the tax paid at the level immediately prior to exemption. For this reason, small businesses that are offered exemption frequently choose to be taxed unless they are at the retail level.

To illustrate this, we must add the wholesaler. If the wholesaler is exempt, it may not claim a credit for the $14 of taxes paid by the manufacturer. In addition, the retailer may not claim a credit on its purchase, so the retailer pays a tax of $20 on its $100 of receipts. The total tax is $34. The net effect is to impose an additional tax equal to the tax paid at the level prior to the exempt level. This is illustrated in the table below:

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30. *See, e.g., Indirect Consumption, supra* note 28.

| Credit Invoice VAT – Exemption of Wholesaler | | | |
|---|---|---|---|
| | Manufacturer | Wholesaler (exempt) | Retailer |
| Proceeds | $70 | $80 | $100 |
| Tax | $14 | $ 0 | $ 20 |
| Credit | $ 0 | $ 0 | $  0 |
| Net | $14 | $ 0 | $ 20 |
| Total | | | $ 34 |

In a subtraction method VAT, if it is open as is almost always assumed to be the case, exemption only eliminates the tax at that level. The reason is that the subsequent level of production can claim a deduction for the purchase from the exempt entity. In our example, the wholesaler cannot deduct its costs and does not pay tax on its receipts. But the retailer can deduct its $80, so it pays tax only on its net receipts of $20, for a tax of $4. The total tax paid is the retailer's $4 plus the manufacturer's $14 or $18. The exemption of the wholesaler exempts the tax on the value added of $10 by the wholesaler.

| Open Subtraction Method VAT – Exemption of Wholesaler | | | |
|---|---|---|---|
| | Manufacturer | Wholesaler (exempt) | Retailer |
| Proceeds | $70 | $80 | $100 |
| Costs | $ 0 | $70 | $ 80 |
| Net | $70 | $10 | $ 20 |
| Tax | $14 | $ 0 | $  4 |
| Total | | | $ 18 |

While the systems appear to be different, they can be made identical. We can make the effect of exemption in a subtraction method the same as in a credit invoice method by denying deductions to subsequent purchasers—by making the system closed. We can make a credit invoice system look like an open subtraction method VAT by creating a wholesale version of zero rating. Effectively, we would allow subsequent purchasers to claim a credit when purchasing from a zero rated business even though the business pays no tax.[31] Therefore, once again, the two systems can be made the same.

The situation with rate differentials is similar. We can consider rate differentials applied at the taxpayer level or by the good. In both a subtraction method VAT and a credit-invoice VAT, there are problems identifying particular goods because goods can be mixed up with other goods.

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31. One difference would be that in an open system, the deduction for subsequent purchasers happens automatically while, in a credit invoice system with zero rating for early stages in production, the zero rated entity would have to provide information to the subsequent purchaser. The information, however, need be nothing more than that the seller is zero rated.

For example, if candy is exempt but fancy boxes are not, what happens if candy is sold in a fancy box? Given that the problem of special rates for particular goods is the same in both types of taxes, we can restrict our attention to the simpler case where particular taxpayers are given exemptions.

If the retail level in a credit invoice VAT is subject to a lower rate, it is like zero rating—the entire good is subject to that rate because the retailer will claim a full credit but be taxed only at the lower rate on receipts. In our example, if the retailer were subject to, say, a 30% rate, it would pay a $30 tax on its receipts but be allowed only a $14 credit for the tax paid by the manufacturer. The manufacturer would pay $14 in tax, so the total tax would be $30 on a $100 good, or 30%.

| Credit Invoice VAT with Retailer at 30% Tax Rate | | |
|---|---|---|
| | Manufacturer | Retailer @ 30% |
| Proceeds | $70 | $100 |
| Tax | $14 | $ 30 |
| Credits | $ 0 | $ 14 |
| Net | $14 | $ 16 |
| Total | | $ 30 |

With a subtraction method VAT, the special rate applies to just that level because the deduction for purchases is at the special rate as well as the tax on receipts. In our example, the retailer would have $30 of net receipts, taxed at a 30% rate, for $9 of tax. The manufacturer would still pay $14 in tax, so the total would be $23. The 30% rate does not apply at the manufacturing level, unlike in the case of the credit-invoice VAT.

| Subtraction Method VAT with Retailer at 30% Tax Rate | | |
|---|---|---|
| | Manufacturer | Retailer @ 30% |
| Proceeds | $70 | $100 |
| Costs | $ 0 | $ 70 |
| Net | $70 | $ 30 |
| Tax | $14 | $ 9 |
| Total | | $ 23 |

Once again, the two can be made identical. In a credit-invoice VAT, the credit can be modified to adjust for the tax rate on the retailer. That is, if the retailer is subject to a 30% rate, we can increase the credit to $21 and be in the same place as with the subtraction method VAT. In a subtraction method VAT, the deduction can be at the normal tax rate. In the example, receipts could be taxed at 30%, but costs deducted at 20%. Then the total tax would be $30, and we would be in the same place as with a credit-invoice VAT. All that is required to make the conversions is

information about the tax rates applied at prior levels of production. In-
voices can provide that information. Note, however, that merely making
a subtraction method VAT closed does not suffice. Instead, the system
needs information about the tax rates applied at prior levels.

Special rates at the wholesale level in a credit invoice VAT have no
effect because the exact amount of the credit is passed forward to the
subsequent buyer. There would be no reason to have special rates at any-
thing other than the retail level in a credit-invoice VAT. For example, if
the manufacturer is subject to a 10% rate, it would pay tax of only $7.
The retailer would then only get a $7 credit. The net result is that the
total tax is $20. The idea is the same as with special rates at the retail
level—it is only the retail level rate that matters in a credit-invoice VAT.

| Credit Invoice VAT – Manufacturer at 10% Tax Rate | | |
| --- | --- | --- |
| | Manufacturer @ 10% | Retailer @ 20% |
| Proceeds | $70 | $100 |
| Tax | $14 | $ 20 |
| Credits | $ 0 | $ 7 |
| Net | $ 7 | $ 13 |
| Total | | $ 20 |

In a subtraction method VAT, special rates at any level of production
have real effects. If the manufacturer is subject to a 10% rate, it pays a
tax of $7. The retailer, subject to the 20% rate, has $30 of net proceeds
and pays a tax of $6. The total is $13, which means that taxes are reduced
by the lower rate on the value added at the manufacturing level. For this
reason, some have concluded that special rates are especially damaging in
a subtraction method VAT.[32]

| Subtraction Method VAT – Manufacturer at 10% Tax Rate | | |
| --- | --- | --- |
| | Manufacturer @ 10% | Retailer @ 20% |
| Proceeds | $70 | $100 |
| Costs | $ 0 | $ 70 |
| Net | $70 | $ 30 |
| Tax | $ 7 | $ 6 |
| Total | | $ 13 |

As usual, however, the two systems can be made identical with enough
information. A credit-invoice VAT can be made identical by allowing a
wholesaler with a special rate to pass on an invoice showing the normal
rate. The manufacturer in our example would pay a tax of $7 but show an
invoice with a tax of $14. A subtraction method VAT can be made identi-

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32. *See Factors, supra* note 5.

cal to the credit invoice VAT by requiring the subsequent buyer to deduct only at the rate paid by the seller—that is, by requiring additional information to be passed from the seller to the buyer that is similar to the information provided in a credit-invoice VAT.[33]

What about rebates at the border for a destination-basis tax? It is commonly stated that subtraction method VATs with differential rates cannot properly rebate taxes. Given the analysis above, it should be clear that this is false—it all depends on the information that is collected on sales between businesses. Subtraction method VATs can be made to look exactly like credit invoice VATs.

Note that if differential rates are applied at levels prior to export, the information has to be essentially the same as that provided in a credit-invoice system if rebates are to be exact. That is, subsequent levels must know the exact amount of tax paid at prior levels or rebates might be wrong. In the example above where the manufacturer is taxed at only 10%, it would not suffice to know that the manufacturer is a taxpayer. Merely making the system closed would not do if there are differential rates. Instead, invoices must pass along the exact rate of tax or actual tax paid, much like in a credit-invoice system. If, on the other hand, tax rates are limited to either the full statutory rate or zero, much less information need be provided. Merely closing the system with invoices that show sellers as either taxpayers or not would suffice.

Finally, note that if rebates are to be exact, the VAT mechanism necessarily wipes out the effect of lower rates at prior levels.[34] This means that there is a trade off between accurate border rebates and policy flexibility. As noted above, the common view among VAT proponents is that policy flexibility is a bad thing, but this seems both overly cynical and also false. It is false because unless the government is never to interfere with markets, we cannot say that it should not interfere through the tax system. It is cynical because at the same time proponents are asking the government to enact a better tax system, they are assuming that the government cannot be trusted to make reasonable policy decisions. I view the lack of policy flexibility created by accurate border rebates to be a mixed blessing.

To summarize, credit invoice systems are the most flexible because they provide the most information from one level of production to the next, but they are also the most costly because they require information collection. This allows the next level to adjust for any treatment at prior levels. Information collection is the only difference in the systems. The question is whether it is worth collecting the information. While American proposals tend to lean strongly toward open subtraction method systems, open systems are intolerable for the reasons stated above. Between a

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33. This same fix solves the problem with border tax adjustments in a subtraction method VAT as well.

34. One can imagine systems that do not do this, but they would entail yet another level of complexity.

closed subtraction method VAT and a credit-invoice system, the question is whether the additional information does more good than harm. The cost of collecting the information is also a question to be considered.

If the tax is to be destination-based, must have accurate border rebates, and might have differential rates, the information provided in the credit system is necessary. At the same time, the adjustments made under the credit system to get accurate border rebates wipe out any rate differentials at the pre-retail level. While many view this as a good thing, it is a limit on policy flexibility and, in my view, a mixed blessing. If a closed subtraction method VAT is used, border rebates will be accurate only if either zero or full taxes are imposed on businesses. If other rates are imposed, a closed subtraction method VAT will not have accurate border rebates and correspondingly, differential rates will have some effect.

### C. EXEMPTIONS AND DIFFERENTIAL RATES IN A TWO-TIER CONSUMPTION TAX

The next question is how or whether this carries over to a two-tier system. It is relatively easy to show that, with proper information, two-tier consumption taxes can work basically the same as VATs, with the exception that rebates will not reflect the progressive rate imposed on labor income.

The first problem with comparing subtraction and credit method systems is that credit-invoice systems have no concept of deductions, so that the deduction for wages must be transformed into a credit. This means that employers must receive a tax credit equal to the wages paid in the accounting period multiplied by the tax rate. At the next level of production, however, the buyer must receive a credit on the tax paid gross of the wage tax credit. The wage tax credit is merely to offset the taxes paid by employees and should increase taxes paid at the next level of production.

For example, our manufacturer has gross receipts of $70 and wages of $50. The total taxes paid by the manufacturer and its workers should be the same as in a VAT, or $14 (leaving progressivity aside for the moment). The workers will have a tax of $10 on their wages of $50. This means that the tax on the manufacturer must be $4. We arrive at this by imposing a gross tax on the manufacturer of $14 on its $70 of proceeds and giving it a wage tax credit of $10.

The retailer now purchases the good for $70 and sells for $100. It pays its workers $20 and they pay a tax of $4. This means that $18 of taxes have been accounted for—$10 by the manufacturer's workers, $4 by the manufacturer, and $4 by the retailer's workers. If the total tax is to be $20, this leaves $2 left to be collected. The retailer has gross receipts of $100, giving it a gross tax of $20. This is reduced by a wage tax credit of $4, reducing it to $16. We must give the retailer a further credit of $14, which is the taxes paid by the manufacturer gross of its wage tax credit. Thus, to create a two-tier credit invoice system we must grant employers a wage tax credit equal to wages paid multiplied by the tax rate and give

subsequent purchasers a credit for taxes paid at prior levels not reduced by this wage tax credit.

| Two-Tier VAT – Basic Case | | |
|---|---|---|
| | Manufacturer | Retailer |
| Proceeds | $70 | $100 |
| Tax | $14 | $20 |
| Wage Tax Credit | $10 | $4 |
| Tax Credit | | $14 |
| Net Tax on Business | $4 | $2 |
| Tax on wages | $10 or less | $4 or less |
| Total | | $20 or less |

Given this system, we can compare subtraction method and credit-invoice methods of collecting two-tier consumption taxes. The theme is the same as for VATs—the only question is what kind of information will be required. If precise border rebates are important (leaving aside the progressive wage tax) and if multiple rates are a potential, the type of information provided in credit method systems will be necessary. If either of these conditions does not hold, the system may be able to get by with less information.

Start with special treatment at the retail level. The results are similar under a two-tier VAT as under a normal VAT, ignoring the progressivity of the wage tax. Consider an exemption of the retailer. Under a credit-invoice system, the combination of the manufacturer and its workers pays $14. The retailer does not receive a tax credit and pays no tax. The only difference is that the retailer's employees pay tax on wages. Exemption only eliminates the non-wage portion of the retailer's value added. There would be an incentive in this case for owners to take profits in non-wage forms. The same holds for subtraction method systems.

If the retailer is zero rated under a credit method system, it receives a $14 credit for the gross tax paid by the manufacturer and a wage tax credit for the $4 wage taxes paid by employees. These credits eliminate all tax paid on the widget at all levels of production. To the extent the wage tax is progressive, they go beyond elimination and the rebates at the border may be too large. Once again, the same is true with a subtraction method VAT that allows a deduction for the retailer's inputs but does not tax outputs.

If the retailer is taxed at a non-zero rate of tax that is different from the otherwise applicable rate, both a credit method and a subtraction method can be applied so that the entire value of the good is taxed at that rate. Once again, this does not adjust for any progressivity of the wage tax. Note that if the only special rates are at the retail level, the only information needed is whether the prior level is taxed or not. A closed subtraction method VAT suffices.

The effects of special rates at prior levels of production for a two-tier consumption tax are once again similar to those in a normal VAT. Consider the case with the wholesaler and suppose the wholesaler is exempt. In a credit method tax, the wholesaler will not receive a credit for taxes paid by the manufacturer or its workers or for taxes paid by the wholesaler's workers. The retailer similarly will not receive a credit for taxes paid at prior levels when it purchases from the wholesaler. The result is that an extra layer of tax is paid. The only difference between the two-tier consumption tax and the VAT is that exemption of the wholesaler does not eliminate taxes paid by its workers, making exemption even less attractive. The same holds true for a closed subtraction method VAT.

If the wholesaler is zero rated or taxed at a differential rate, it will receive credits that offset any taxes paid at prior levels or taxes paid by its workers. Its non-wage value added is taxed at the zero or special rate. The retailer then purchases the widget. The retailer sells for $100 and has a $20 gross tax. It also receives a wage tax credit for its $15 of wages it pays, or $3. Assuming it gets no credit for taxes paid at prior levels (if the wholesaler is zero rated), the combination of the retailer and its employees pay the full $20 of taxes and zero-rate taxation at the pre-retail stage has no effect. Border rebates would be exact. If the wholesaler is taxed at a positive rate of tax, the credit would be based on that rate and the results would be the same.

| Two-Tier Credit Method VAT – Zero Rated Wholesaler Case One | | | |
|---|---|---|---|
|  | Manufacturer | Wholesaler @ 0% | Retailer |
| Proceeds | $70 | $80 | $100 |
| Gross tax | $14 | $0 | $ 20 |
| Wage tax credit | $10 | $1 | $ 3 |
| Tax credit | $ 0 | $14 | $ 0 |
| Net | $ 4 | ($15) | $ 17 |
| Wage tax | $10 | $1 | $ 3 |
| Subtotal | $14 | ($14) | $ 20 |
| Total |  |  | $ 20 |

Note that there are other possibilities for the retailer. For example, we could give the retailer a $16 credit on its $80 purchase. This would be like allowing a deduction in a subtraction method VAT. The result would be that only value added at the retail level would be taxed.

| Two-Tier Credit Method VAT – Zero Rated Wholesaler Case Two | | | |
|---|---|---|---|
|  | Manufacturer | Wholesaler @ 0% | Retailer |
| Proceeds | $70 | $80 | $100 |
| Gross tax | $14 | $0 | $ 20 |
| Wage tax credit | $10 | $1 | $  3 |
| Tax credit | $ 0 | $14 | $ 16 |
| Net | $ 4 | ($15) | $  1 |
| Wage tax | $10 | $1 | $  3 |
| Subtotal | $14 | ($14) | $  4 |
| Total |  |  | $  4 |

We can also adjust the system to exempt only the value added at the wholesale level. To do this, we would exempt the wholesaler from tax by denying it credits for its purchase from the manufacturer, but allowing the retailer a credit for hypothetical taxes paid at the wholesale level (equal to price multiplied by the tax rate). The following table illustrates:

| Two-Tier Credit Method VAT – Exempt Wholesaler | | | |
|---|---|---|---|
|  | Manufacturer | Wholesaler (exempt) | Retailer |
| Proceeds | $70 | $80 | $100 |
| Gross tax | $14 | $ 0 | $ 20 |
| Wage tax credit | $10 | $ 0 | $  3 |
| Tax credit | $ 0 | $ 0 | $ 16 |
| Net | $ 4 | $ 0 | $  1 |
| Wage tax | $10 | $ 1 | $  3 |
| Subtotal | $14 | $ 1 | $  4 |
| Total |  |  | $ 19 |

We could also give the exempt wholesaler a wage tax credit so that all the value added, not just the non-wage value added is exempt. Note that in these latter cases, where the treatment of the retailer does not "zero out" the effect of prior special rates, rebates at the border would not be exact. Only if the tax credit to the retailer matches the gross of wage tax credit tax on the wholesaler does the system accurately measure prior taxes and therefore give accurate border tax rebates. But if this is the case, there is no flexibility to grant special rates—Congress loses a policy option.

It no longer needs demonstrating that a subtraction method VAT can be made exactly equivalent. All we need is sufficient information to adjust the various tax rates on subsequent purchasers. In addition, it should be apparent that the only difference between the two-tier and normal VATs is that border rebates will be inexact for the two-tier system be-

cause of the progressive wage tax. Other design choices remain basically the same.

One difference worth pointing out, however, is that the existence of the wage tax in the two-tier system might mean we need less flexibility at the business level. One reason is that the wage tax helps with progressivity so that, if one reason for special exemptions at the business level is to make the tax more progressive, we may not need them. In addition, to the extent other policy goals are implemented through the tax system, policy makers can use credits or deductions against the wage tax in addition to special business level rates. Therefore, policymakers may need less flexibility for the business level tax. This means that it might be able to get by on less information and, conceivably, a closed subtraction method VAT might be sufficient.

## D. TRANSITION AND RATE CHANGES

As noted above, consumption taxes are often thought to impose a one-time tax on all pre-transition date assets or old capital. For years, commentators viewed the tax on old capital as a necessary (and as discussed below, desirable) component of a consumption tax. It turns out on closer examination that this one-time tax on old capital really has nothing to do with consumption taxes. As Dan Shaviro and others have pointed out, the tax on old capital is merely an artifact of how we measure income and consumption under the two systems and alternative methods of measurement would not have this effect.[35] For example, we currently account for income by giving taxpayers basis and allowing them to recover basis as proceeds from the investment are received. But we could easily have allowed taxpayers to deduct the cost of investments immediately by letting them deduct only the present discounted value of the expected future basis recoveries. Under such a system, our retailer would deduct part of the cost of the tomato juice under the income tax prior to the transition date. Then, there would be no loss of basis on a switch to a consumption tax and, hence, no additional tax.

Similarly, consumption can be measured using a basis system much like current law. Because we can measure consumption with an immediate deduction equal to the full purchase price, any basis system that has the same present value will have the same net effect. Thus, a basis recovery system that taxpayers a deduction in each year equal to the decline in the value of the asset, just like under current law, plus a tax allowance for the interest expense of deferring the deduction from the time of purchase, would measure consumption. The present value of the deductions under such a system and under the cash flow system would be the same; hence, the present value of the taxes they produce would be the same. Switching from the current income tax to such a consumption tax, however, would

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35. DAN SHAVIRO, WHEN RULES CHANGE: AN ECONOMIC AND POLITICAL ANALYSIS OF TRANSITION RELIEF AND RETROACTIVITY (Univ. of Chicago Press 2000).

have no transition effect. Our widget retailer would be allowed recover his basis (and more) under this type of consumption tax. Therefore, the additional tax on old capital is a mere artifact of accounting systems used under the income tax and a VAT rather than an inherent part of a consumption tax.

The question for the transition, therefore, is whether such a tax on old capital is desirable, not whether it is inevitable. Economists have often modeled the transition tax as if it were unavoidable. Because they model it as unavoidable, it is perfectly efficient and, therefore, generally desirable.[36] This conclusion, however, is just a restatement of an unjustified assumption, an assumption that is probably wrong. The transition tax almost certainly would be avoidable. The switch to a consumption tax would not occur overnight and, to the extent that it is anticipated, taxpayers can accelerate consumption or shift their financial positions in such a way as to avoid the impact of the transition tax. For example, as noted above, if durable goods are not subject to the transition tax, taxpayers can shift their holdings to durable goods. The transition tax is not imposed immediately. Instead, it is imposed over time as taxpayer receive cash for the sale of pre-transition assets. To the extent the tax system has loopholes, taxpayers may be able to avoid the tax on cash receipts and thus avoid the transition tax. Given the size of the transition tax that might be imposed, there will be a sizable incentive to find and exploit loopholes.

The question then becomes a comparative question of whether the transition tax is efficient relative to other taxes. An anticipated introduction of a consumption tax without transition relief will discourage saving and investing, encourage consumption prior to the transition date, cause individuals to restructure their financial positions to avoid the impact of the tax, and create an incentive for businesses to find loopholes. These effects might be very strong. With transition relief, however, the tax rate may have to be much higher, which may produce large inefficiencies. We cannot draw any *a priori* judgments about which choice is better because the degree to which the transition tax is anticipated and is avoidable depends on the details of implementation. Moreover, judgments that pose the transition question as an either/or type question are insufficiently nuanced. We can scale the transition tax by changing the value of deductions for pre-transition basis anywhere from zero (no relief) to one (full relief).

Dan Shaviro makes an argument that imposing a transition tax is likely less efficient than giving transition relief and increasing other taxes.[37] The transition tax is just like eliminating all basis under the current income tax. If this basis wipe-out is efficient when we switch to a consumption tax, it should be efficient under the income tax. But nobody seems to think that eliminating all basis under the income tax would be particu-

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36. *See, e.g.,* ALAN J. AUERBACH & LAWRENCE J. KOKLIKOFF, DYNAMIC FISCAL POL-ICY (Cambridge Univ. Press 1987).

37. SHAVIRO, *supra* note 35.

larly clever. One important reason is that if that works the first time, it should work the second and third time. This possibility will be anticipated no matter how much the government insists that it is wiping out basis just this once. That is, there is no easy way for the government to pre-commit. Anticipation of future basis wipe-outs will create a strong incentive to accelerate consumption, which is likely to be inefficient.

While there is much to Shaviro's argument, the "just this once" statement on a switch to a consumption tax may be more believable than a just this once basis wipe-out under the income tax. Perhaps it is merely slight of hand, but the simplest way to collect a consumption tax is to use a cash flow system, while the common and intuitive way of measuring income is to use basis. Thus, the basis wipe-out seems to flow as a natural consequence of switching between the easiest ways of collecting these taxes. In addition, once we have made the switch to a consumption tax, it is much for difficult for Congress to do it again for the simple reason that the accounting method under the consumption tax does not have basis. Therefore, the "just this once" statement may be more believable on the switch to a consumption tax even than under an income tax.

Note, however, that in an important sense, the transition tax will never be a "just this once" tax. The reason is that the same phenomenon occurs every time tax rates are changed.[38] Consider our widget retailer, but he now purchases the widget for $70 under the consumption tax when the tax rate is 20%. He can deduct the $70 and save $14 in taxes in that year. Overnight, the rate goes up to say, 30%. If he sells the widget the next day for $100, he gets taxed on the proceeds at a 30% rate and therefore has a net tax liability of $16 ($30 tax on the proceeds less $14 tax savings from the deduction). Had the tax rates stayed the same, his tax would have been only $6, so the additional tax from the tax increase is $10. The 10-percentage-point increase in rates was effectively a tax on his existing $100 capital of 10%. If the tax rate had gone down, he would have had a capital subsidy. In fact, tax rate changes are just a more general version of the transition problem—we can think of transition as increasing the rate from 0% to the initial tax rate.

The incentive problems for tax rate changes are similar to those on transition. Anticipation will lead to behavioral changes and inefficiencies. The size of the effects may be smaller, however, so depending on how administratively costly it is to offer transition relief, our conclusions about its desirability may change.

These rate change problems exist to some extent under the current income tax with respect to unrealized appreciation. If tax rates are going down, taxpayers have an incentive to defer realization. If tax rates are going up, the incentives are more complex because accelerating realization means ending the benefits of deferral while getting the benefit of the lower rate. Depending on their expected future realization date and the

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38. *See* David Bradford, *Transition to and Tax Rate Flexibility in a Cash-Flow Type Tax, in* TAX POLICY AND THE ECONOMY (James M. Poterba ed., 1998).

size of the tax rate change, some taxpayers may have an incentive to accelerate realization. Nevertheless, the size of the problems under the income tax are unlikely to be as large as under a cash flow tax because it uses a basis system. Future basis recoveries are under the new rate and only where basis differs from value is there a problem.

Suppose we choose not to impose the transition and rate change tax. Is there a simple way to offer relief from the tax? It depends on whether we are concerned only about transition or about both transition and rate changes. If we are only concerned about transition, all we need to do is allow taxpayers to deduct all of their pre-transition basis at the time of transition. Our retailer would then get a $70 deduction on transition and a tax on the sale of the widget of only $30, exactly as if he purchased the widget in an on-going system. This system would lead to a very large revenue loss to the government in the year of transition, however, which might present a large fiscal challenge.

An alternative that would work for transition while reducing the fiscal problems with an immediate deduction is to force taxpayers to take the deduction over time, but give it the same present value as a current deduction. Effectively, the government would be borrowing from taxpayers rather than the capital markets to smooth out its revenue flows. Note also that transition relief can be scaled by changing the present value of the deduction.

If we are worried about rate changes as well as transition, David Bradford has shown that allowing depreciation deductions (adjusting for inflation) equal to the economic decline in the value of an asset plus granting an interest rate adjustment (to keep the present value the same) gives exactly the right relief.[39] If basis recovery is accelerated relative to value, and there is a tax rate increase, there will be too little relief. Correspondingly, if there is a rate decrease, there will be too much relief. The opposite holds true if basis recovery is too slow. The intuition is basically the same as the intuition regarding untaxed appreciation under current law.

The drawback to such a scheme is that it requires depreciation, which is one of the major administrative problems with an income tax. But accuracy will be far less important than it is under current law. Because of the interest rate allowance, the present value of the deductions is the same regardless of the depreciation schedule adopted. Therefore, on the initial transition, the schedule has no effect. The only affect of getting the schedules wrong is that there would be some tax or subsidy on a tax rate change, the size of which depends on the difference between value and basis. Relatively crude estimates might provide some relief on rate changes without imposing undue administrative costs. Moreover, it may make sense to offer relief only on transition and not for other rate changes merely because of the relative size of the transition compared to

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39. *See id.*

rate changes. If this is the case, accuracy does not matter and depreciation need not even be required for post transition assets.

Note also that the basis system requires inflation adjustments. Inflation adjustments would be desirable under current law but are thought to be administratively infeasible. The major problem with these adjustments under current law, however, involve adjustments to debt and other financial instruments rather than mere adjustments to basis in tangible assets. Under a cash flow tax, no adjustments would be required for financial instruments because they are not taxed at all. Therefore, inflation adjustments may be feasible under a cash-flow tax even if they are not under current law.

The question is whether it is worth the cost to reduce the effect of rate changes. Suppose we believe that absent administrative costs, both rate change and transition relief are efficient (a disputed view, but potentially true nonetheless). There are good arguments in this case that the administrative costs are worth the benefits on transition but not for rate change relief. Rate change relief requires a permanent system of accurate depreciation. Transition relief requires only a one time adjustment. Moreover, the transition shock is likely to be much greater than most rate changes, making relief more important.

The final element of transition, which is often glossed over in the consumption tax literature, is the switch to a uniform tax on capital. Current law imposes a wide mix of tax rates on capital.[40] The different effective tax rates on capital cause intra-asset distortions. When these are eliminated in the switch to a consumption tax, asset prices will change, imposing transition gains and losses.[41] Imposing these types of gains and losses may be efficient, but it could also lead to significant disruptions. For example, current law favors residential housing over other capital. An x-tax would be approximately neutral between housing and other capital. This may cause a shift in housing prices, leading to disruptions. The effects are likely to be very complex, but we would want to understand them as well as possible before switching to a consumption tax. There is also no easy way to eliminate this problem. Grandfathering of existing assets would partially defeat the goal of providing a uniform tax on capital. Some have suggested a slow phase-in, but it is not clear why this is a good idea.[42]

The only saving grace in all this is that decisions regarding transition are largely independent from other design issues (except insofar as transi-

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40. *See* DEPARTMENT OF THE TREASURY, REPORT TO THE CONGRESS ON DEPRECIATION RECOVERY PERIODS AND METHODS (July 2000); DALE JORGENSON & KUN-YOUNG YUN, TAX REFORM AND THE COST OF CAPITAL 147-52 (Clarendon Press 1991); Dale Jorgenson & Kun-Young Yun, *Lifting the Burden: Tax Reform, The Cost of Capital, and U.S. Economic Growth, in* 3 INVESTMENT (2001).

41. For a discussion of the rate leveling effect of tax reform, see William Gentry & R. Glenn Hubbard, *Fundamental Tax Reform and Corporate Financial Policy, in* 12 TAX POLICY AND THE ECONOMY (James M. Poterba ed., 1998).

42. *See* Michael Graetz, *Legal Transitions: The Case of Retroactivity in Income Tax Revision*, 126 U. PA. L. REV. 47 (1977). *But see* Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509 (1986).

tion relief affects the tax rate, which changes the pressure on other design elements). We can choose subtraction method, open systems, closed systems, and other elements of the tax, and make a largely independent decision on transition.

These decisions, however, are not wholly independent. For example, it is beyond the scope of this paper to show why, but destination-basis taxes impose transition gains and losses on in-bound and out-bound transactions that span the transition date.[43] Therefore, the decision to have transition relief is in conflict with the decision to have a destination-basis tax. Also, if there is transition relief, there will be much less tax collected at the business level. The business level tax would exist only to tax inframarginal returns and disguised returns to labor. It is conceivable that an open system might be viable for this smaller business level tax because avoidance would be less important.

## III. SUMMARY AND CONCLUSION

There are obviously a wide range of considerations in whether to adopt a consumption tax and whether it should be a two-tier consumption tax of the type explored here. There are also a vast number of individual policy decisions that go into designing any type of tax and only a few were explored here. The basic conclusions from the analysis were listed above. I would like to close by expanding on them a bit and speculating on a few other issues.

First, the two-tier system puts us in a dilemma unless we can amend the GATT. Under current trade agreements, we are forced to trade the benefit of progressivity with the cost of an origin-basis system. To be consistent with the GATT, a two-tier consumption tax would have to be origin based, which, because it is open, I view as a serious problem. This dilemma seems crazy. We should not be punished because we want to make the tax system more progressive. Moreover, we could clearly have a normal VAT and a welfare system that provided payments such that the overall distribution of the system is the same, but we cannot combine the two, even if combining them reduces the administrative and political costs of helping the poor.[44]

Second, two-tier consumption taxes have the potential to be simpler in many ways than a VAT because it reduces the pressure to have special rules that increase progressivity. That is, for example, the progressive wage tax may reduce the pressure to exempt items such as food or other necessities. This may help simplify the system. The two-tier system, however, introduces its own type of complexity. It requires a vast number of

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43. *See* Bradford, *supra* note 14.

44. Apparently, Congress has instructed the U.S. trade representative to begin negotiations to allow direct taxes to be rebated at the border. This instruction arises out of the dispute involving the FISC and subsequent rules rather than anything to do with consumption taxes. Nevertheless, we may know in the near future whether these efforts have any possibility of success.

additional returns, raises problems of the taxable unit, and creates opportunities for deductions and credits that can be used against the wage tax, reintroducing complexity (all in addition to the problems created if the system must be origin-based).

Third, if the two tier system allows sufficient simplification of the business level tax, it could be implemented through a closed subtraction method. This would reduce compliance costs of the system considerably. If, however, accurate border adjustments are an absolute constraint, I doubt that a closed subtraction method system (by which I mean with the information provided in such a system) will be sufficient. Inevitably, special rates (other than zero) will slip into the system in subtle ways, making accurate border adjustments impossible. Therefore, I believe it is almost inevitable that we have something like the credit invoice system.[45]

Fourth, it is important to keep in mind the vast number of other issues that have to be resolved before considering the system workable. Decisions on many of these issues have to be coordinated, making the job that much more difficult. For example, we would have to decide whether the system would have a small business exemption. Most VATs around the world have such an exemption, but our current income tax does not. Whether such an exemption is desirable and the exemption's size interact with the credit or subtraction method choices. In addition, we would have to determine the rules for when a service provider is an employee, subject to the wage tax, or an independent contractor, either taxed or subject to a small business exception. We face basically the same issue now and it is very problematic.

We would also have to determine the rules for charities and other tax exempt entities.[46] Presumably, most of these entities would remain exempt from tax, but their interaction with the rest of the system would have to be thought through carefully. In addition, the charitable deduction would have to be rethought because it would no longer provide any benefit for capital income.

Many state and local governments provide goods and services. We would have to determine whether or how to charge consumption tax on these items. Presumably, wages of state and local government employees would be taxed and no deduction would be allowed to the local government. Therefore, even if the government did not collect taxes on the sale of its services, some portion of the services would bear tax.

A related issue is how the repeal of the federal income tax and its replacement with a consumption tax interacts with existing state and local tax systems. Right now, most states have an income tax that mimics the

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45. Michael Graetz also points out in conversation that a subtraction method system is less politically stable than a credit system because it is easier to turn the system into an income tax by changing from deductions to depreciation. Credits are one step further removed.

46. *See* Charles T. Clotfelter & Richard L. Schmallbeck, *The Impact of Fundamental Tax Reform on Nonprofit Organizations, in* ECONOMIC EFFECTS OF FUNDAMENTAL TAX REFORM (Henry J. Aaron & William G. Gale eds., 1996).

federal system and that relies to some extent on the federal system for collection and audits. In addition, most states impose some form of consumption taxation, usually through a retail sales tax. The interaction of a two-tier consumption tax with these systems would have to be thought through.

An issue that many have raised is that the two-tier consumption tax might need special rules for financial intermediaries. If the tax is R-based, financial intermediaries would face no tax on their value added but might be able to get refunds for the wage taxes paid by employees and for other taxable inputs. It is not clear that the problem is that much worse than under current law, but it would be more visible.[47]

Current law includes a wide variety of social policies incorporated into the tax. There are special provisions for home ownership, education, child-bearing, retirement saving, and various economic activities, such as engaging in research and development and drilling for oil. All of these provisions have to be rethought. For example, many of our pension rules rely on taxes to create incentives. With an x-tax, savings incentives would no longer be valued (unless they produced a negative tax rate), so enforcement of pension rules might have to be completely revamped.[48] Tax reformers typically start by throwing them all out with a blanket assertion that they are inefficient. This seems overbroad. While many may be inefficient, it is unlikely that government interference with the market is always inefficient. Moreover, many of these, efficient or not, enjoy great popularity and might end up being incorporated into any reformed tax system.

The wage tax, as previously noted, introduces the possibility of marriage penalties and bonuses. There is no greater chance of successfully resolving this issue under an x-tax than under current law. Nevertheless, some compromise must be made. In addition, because of progressivity, we might need a kiddie tax or a rule preventing unreasonable compensation of related minors.

Accounting periods and methods will continue to be a problem under the x-tax, although much less of a problem than under an income tax. The reason is that the tax will agglomerate transactions that occur over some period of time, such as a year, into a single instant. When transactions happen in the year can alter tax liability.[49] VATs have a variety of accounting rules, and the x-tax would have to develop its own. VATs also employ a variety of accounting periods, often allowing taxpayers to elect

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47. *See* David Bradford, *Treatment of Financial Services Under Income and Consumption Taxes, in* ECONOMIC EFFECTS OF FUNDAMENTAL TAX REFORM (Henry J. Aaron & William G. Gale eds., 1996).

48. *See* Daniel I. Halperin & Michael J. Graetz, *Comprehensive Tax Reform and Employee Benefits: The Case of Employment-Based Pensions and Health Insurance, in* TAX REFORM IMPLICATIONS FOR ECONOMIC SECURITY AND EMPLOYEE BENEFITS (Dallas L. Salisbury ed., 1997).

49. *See* Weisbach, *supra* note 3.

short periods so that they may obtain quicker refunds. The x-tax would have to struggle with similar issues.

The list goes on. We would have to determine whether the estate and gift taxes should remain. This is a substantial and difficult policy question and the answer may change if we shift to a consumption tax. The treatment and definition of fringe benefits such as health insurance would have to be determined. To the extent there are special regimes for particular types of entities, consolidation rules and rules governing corporate level transactions would be needed. We are a long way from having a tax that is ready to be enacted.

All these issues can be addressed as part of the process of thinking through tax reform. That the x-tax does not specify answers is not a flaw. The point is merely that while setting the bare outlines of the tax is difficult enough, substantial work lies ahead.