

From the  
**Office of Tax Policy Research**

---

WORKING PAPER SERIES

# The International Implications of Consumption Tax Proposals

by

**Harry Grupert**

U.S. Treasury Department

**T. Scott Newlon**

U.S. Treasury Department

---

The Office of Tax Policy Research, established in 1987, promotes policy-oriented research in taxation, and serves as a liaison between the academic, business, and policy making communities. We are committed to using state-of-the-art methods to analyze tax policy issues, and to disseminate our findings, and those of a broader academic community, to people in the policy making community.

LEADING IN THOUGHT AND ACTION

**The International Implications of Consumption Tax  
Proposals**

**Harry Grubert and T. Scott Newlon**

**Working Paper No. 95-3**



***THE INTERNATIONAL IMPLICATIONS OF CONSUMPTION TAX PROPOSALS***

by

Harry Grubert and T. Scott Newlon

U.S. Treasury Department, Washington, DC 20220

September 13, 1995



Several of the current tax reform proposals would replace the U.S. income tax system with a consumption tax. This paper examines how recognizing the international mobility of goods and capital may change the results of a closed economy analysis of these proposals. We consider the effects of the proposed tax systems on cross-border investment and trade and on international tax administration and compliance problems. We also examine the distribution of the transition incidence of these plans between foreign and U.S. residents and the possible reactions of other countries to a change in U.S. tax policy of this nature.

The analysis in this paper will focus largely on two of the consumption tax proposals, a "flat" tax, as proposed by Representative Armey, and the Unlimited Savings Allowance (USA) Tax proposed by Senators Nunn and Domenici. The Armey flat tax proposal is modelled on the tax scheme developed by Hall and Rabushka (1983, 1985 and 1995), which we rely on for details of the plan.<sup>1</sup> Under the flat tax scheme, individuals are taxed only on their wage income (including pensions) and businesses are taxed on their cash flow measured as sales less purchases, including capital purchases and wages. Under the USA Tax plan, individuals face a consumed income tax, i.e., a tax on income less savings (plus dissavings). At the business level, the USA Tax imposes a subtraction method value-added tax (VAT), i.e., tax is paid on sales less purchases, where purchases include capital purchases but not wages.

Our focus will be largely on the business tax components of these proposals, although we note the effects of the consumed income tax, or other consumption tax variants, where they differ significantly. The proposals are compared principally to our current tax system. To examine the extent to which the results of this comparison derive from the consumption base or other features of the plans, we also consider the effects of an income VAT, which differs from a consumption VAT in that capital purchases are depreciated rather than being expensed.

Our principal conclusions are as follows:

- Taking the effects of international capital mobility into account, a switch to a consumption base has an uncertain impact on the total U.S. capital stock. Investment in U.S. equity should increase, but debt financed investment in the United States may decrease to the extent that U.S. interest rates would fall in the absence of capital mobility.
- The integration of world debt markets is likely to substantially dampen any decline in interest rates that might otherwise occur.
- In contrast its effects under an income tax, the exemption of foreign income under a consumption tax, including exemption of receipts of foreign royalties under the destination principle, is not likely to cause a substantial "runaway plant" effect in which multinational corporations (MNCs) shift production abroad. On the contrary, MNCs would likely shift tangible investment, intangible assets and R&D to the United States.
- As argued by most economists, the alternative destination and origin principles for the taxation of exports and imports under a consumption tax are equivalent for international investment and trade at the margin.
- Origin- and destination-principle taxes do differ in their taxation of the inframarginal, supernormal returns of U.S. investors from foreign investments and foreign investors from U.S. investments. A consequence is that under the origin principle, but not under the destination principle, some incentive may remain for MNCs to locate production in low-tax countries to avoid U.S. tax on supernormal returns. However, this incentive is likely to be weaker than it is under the current tax system.
- Transition effects of eliminating the income tax aside, when a destination-principle consumption tax is imposed foreigners bear no transition tax on their U.S. assets, while U.S. residents bear transition tax on both their U.S. and foreign assets. When an origin-principle consumption tax is imposed both U.S. residents and foreigners bear the effective transition tax

on their U.S. assets, but U.S. residents bear no transition tax on foreign assets held prior to imposition of the tax.

- A consumption base would provide some significant simplifications in international tax rules. For example, expense allocation rules would be largely unnecessary, as would rules affecting passive foreign income.
- In addition, a destination-principle consumption tax would eliminate incentives for income shifting by MNCs out of the United States through manipulation of their transfer prices. But there would continue to be such an incentive under an origin-principle consumption tax.
- There would be some new complexities and tax avoidance issues. For example, under the destination principle it may be difficult to identify non-deductible foreign services and to allocate implicit service fees of financial intermediaries between foreign and domestic sources.
- A destination-principle consumption tax creates an incentive for cross-border shopping and consumption abroad, e.g., through emigration.
- The reactions of foreign governments must be considered in evaluating the effects of these proposals. They may react to the extent that they find their countries less competitive in terms of the taxation of capital and they experience tax base erosion through shifting of interest expenses and, under the destination principle, transfer pricing practices.
- Perhaps surprisingly, foreign governments may not find it in their interest to terminate their income tax treaties with the United States.

The next section of the paper summarizes features of the proposals that are relevant to the analysis. The following sections of the paper analyze the implications of the plans for the activities of MNCs, international capital flows and trade, tax avoidance opportunities and the complexity of international tax provisions, transition incidence, and the reactions of other countries. The last



section presents some concluding remarks.

## RELEVANT FEATURES OF THE PLANS

### *The tax base*

Both the flat tax and the USA Tax have consumption bases. The flat tax and USA business tax are essentially both subtraction method VATs in that purchases of goods and services are immediately deductible, including capital expenditures. The flat tax differs from the typical consumption VAT only in that wages are deductible at the business level and taxable at the personal level. The USA individual tax is a consumed income tax in that the consumption base is arrived at by deducting from (including in) income a measure of net new saving (dissaving).

The principal significance of the consumption base is that an investment in the United States governs the pre-tax rate of return to capital. For a tax rate of  $t$ , a dollar's worth of capital can be bought with  $1-t$  dollars because it is immediately deductible (i.e., it is expensed) and each year the investment will pay  $1-t$  of its cash flow after tax. The expensing of the capital invested and taxation of the cash flow occur at the business level under a flat tax or subtraction method VAT and at the individual level under a consumed income tax. Because the present value of the cash flow from a dollar invested at the margin should be equal to a dollar, the value of the expensing is just equal to the present value of the tax on the future cash flow from a dollar invested at the margin and there is no tax on the return to new capital at the margin. There is tax on inframarginal, supernormal returns because the present value of the tax on the future cash flow will exceed the value of the initial deduction. However, an investment project that is worthwhile in the absence of the tax will remain worthwhile with the tax, and the choice among investments would not be affected by the tax.

An income VAT operates on the same basis as a consumption VAT except that capital purchases are depreciated for tax purposes rather than being expensed. Under an ideal income VAT, in which depreciation allowances match economic depreciation, marginal as well as inframarginal returns to capital would be taxed. Under such a tax, returns to capital would be taxed only once at the business level, since interest and dividends would not be deductible to the business and would not be taxed at the personal level.

The current U.S. tax system departs substantially from this ideal income VAT. There is a classical corporate income tax in which equity income is taxed once at the corporate level and then again when distributed at the personal level. Interest income is taxed, if at all, only at the personal level, since it is deductible at the business level. Depreciation allowances are not necessarily related to economic depreciation, and nominal, rather than real, interest is taxed. There are also substantial tax-favored sectors, including owner-occupied housing, tax-exempt entities such as pension funds and the state and local government sector, which benefits from being able to issue tax-exempt bonds. And non-corporate business is also taxed more favorably than corporate business.

Given these complications, it cannot be presumed that much tax is paid on capital income. In fact, in an analysis of 1983 data, Gordon and Slemrod (1988) estimated that the United States collected very little revenue from the taxation of capital income. Even so, they did find that some revenue was collected, and the 1986 Tax Reform Act significantly narrowed the scope for the tax arbitrage that allowed capital income to escape tax or, in fact, be tax-favored.<sup>2</sup> Consequently, we shall assume that the current U.S. tax system does impose some tax on capital income; however, the complications we have outlined above will prove important in analyzing the effects of the proposals on capital flows.

### *Dichotomy between real and financial transactions*

The flat tax, the USA business tax and an income VAT all use what is called an R base (for real, as distinct from financial, transactions), a terminology adopted from the Meade Committee Report.<sup>3</sup> Under an R-based tax, sales of goods and services are taxed and purchases of goods and services are deductible, but financial transactions, including the payment and receipt of interest and dividends, are ignored. This creates an issue, familiar to those who have studied the VAT, concerning the taxation of banks and other financial intermediaries.<sup>4</sup> In the context of this paper, one implication is that while interest is not deductible from the U.S. tax base, it still will be deductible in countries that retain an income tax.

The USA individual tax is an example of an (R+F)-based tax, in which real and financial transactions enter the tax base. Under an (R+F) base, net increases (decreases) in financial assets are taxable (deductible). In the context of debt, this means that cash receipts from borrowing (a borrower's proceeds from the issuance of new debt or a lender's receipts of interest or principal repayments) are taxable and cash payments from borrowing (a borrower's interest payments and repayments of principal or a lender's new loans) are deductible. McLure and Zodrow (1995) have proposed a consumption tax system that is the reverse of the USA tax in that the business level tax is on an (R+F) base while the personal level tax is on an R base. Note that the treatment of interest under the R and (R+F) bases is essentially equivalent. Since the present value of interest and principal repayments on a loan is equal to the amount of the loan, the deductions and inclusions for debt under the (R+F) base are equivalent to ignoring debt transactions under the R base.

### *Non-deductibility of interest*

Under the flat tax, the USA business tax and all VATs, including an income VAT, interest expense is not deductible at the business level and interest income is not taxed. In a purely domestic context, this change is innocuous to the extent that the elimination of interest deductibility is compensated for by the elimination of tax on interest income. But the increase in tax from the loss in interest deductions may actually far exceed the tax saving from exemption of interest income because so much interest income is not taxed under current law. Consequently, such a change would increase the tax burden on debt-financed business investment substantially. In an open economy, the shift to interest non-deductibility becomes even more significant because foreigners already are exempt from U.S. tax on portfolio interest. Because they derive no benefit from any personal level exemption, foreigners would reduce their holdings of U.S. debt if the adoption of these proposals produced any tendency for U.S. interest rates to decline.

### *Origin versus destination principle*

Consumption taxes can differ in the way that exports and imports are treated. Under the destination principle, imports are taxed (either by making them non-deductible to the importing business or by imposing an import tax) and exports are exempt.<sup>5</sup> This means that the aggregate base of the tax, netting out transactions between businesses and taking into account the deduction of capital expenditures, is domestic consumption of goods and services. Under the origin principle, exports are taxed and imports are not. This means that the aggregate base of the tax is domestic consumption plus net exports. The USA tax follows the destination principle while the flat tax follows the origin principle.<sup>6</sup> It has been claimed that the destination principle promotes exports and domestic

investment. We discuss in later sections what effects the different bases might have on trade, investment, tax avoidance opportunities and transition incidence.

The choice between destination and origin principles is also available for an income VAT. Under the origin principle, the tax base would be U.S.-source income, while under the destination principle, it would be U.S.-source income less net exports.<sup>7</sup>

### *Treatment of foreign income*

Under the current U.S. tax system, U.S.-resident individuals and businesses are subject to tax on their foreign income. In the case of income earned by controlled foreign subsidiaries of U.S. MNCs, U.S. tax is generally not imposed until the income is distributed to the U.S. parent company as a dividend; this policy is known as *deferral*. At the time of income repatriation, a tax credit against U.S. tax liability is allowed for any foreign taxes paid directly on foreign income. For dividend distributions from controlled foreign subsidiaries, U.S. MNCs also receive a foreign tax credit for underlying foreign corporation taxes on the income out of which the distribution is made. The foreign tax credit is limited to the amount of the U.S. tax liability on foreign income, so that any foreign tax in excess of that amount cannot be used to reduce other U.S. tax liabilities. Within limits imposed by separate "baskets" for different types of foreign income, excess foreign tax credits from one source of foreign income can be used to offset U.S. tax liability on other foreign income; this is sometimes called *cross-crediting*.

Under R-based consumption taxes such as the flat tax and the USA business tax, foreign interest and dividends, as well as the foreign earnings of U.S. MNCs, are exempt. Under (R+F)-based consumption taxes such as the USA individual tax, all interest and dividend receipts are taxed, but investment in both foreign and domestic assets is deductible, so that capital income is untaxed at

the margin whether it is foreign or domestic source.

A business level income tax could also exempt income from direct foreign investment, as is done in a number of other countries. However, income from passive, or portfolio, foreign investment could not realistically be exempted without leading to substantial erosion of the taxation of capital income.<sup>8</sup>

Royalty receipts from foreign licensees are in a category distinct from interest and dividend income from foreign sources because they can be thought of as payments for the export of an intangible asset, just as lease payments from a foreign lessee to a lessor of U.S. machines are payments for the export of those machines. Under current tax law, receipts of royalties from abroad are included in foreign-source income, but, in principle, they could be included in domestic income under an income tax, as generally is income from the export of goods under current law.<sup>9</sup>

Based on this reasoning, the taxation of royalties should be consistent with the choice of destination or origin principle.<sup>10</sup> Royalty receipts from abroad should be exempt under the destination principle and royalty payments to foreigners not deductible. Conversely, under the origin principle, all royalty receipts should be taxable and all royalty payments deductible.

## **IMPLICATIONS FOR INVESTMENT AND TRADE**

Our analysis will start by considering what effects the plans might have on the behavior of MNCs. We then go on to examine the potential effects of the plans on overall capital flows, and, consequently, on the U.S. capital stock, taking into account the differential effects on debt and equity and spillover effects from other sectors of the economy such as non-corporate business, residential housing, and state and local government.

## *Effects on MNC Behavior*

In this section we consider the effects of moving to a consumption tax system on MNC decisions regarding the location of production, the location of intangible assets, where R&D is performed and the financial structure of the multinational group. In examining the MNC investment location decision we implicitly treat investments as being equity financed.<sup>11</sup>

### *Location of production by U.S. MNCs*

Under R-based consumption tax proposals such as the flat tax and the USA business tax, the foreign income of U.S. MNCs would be exempt from U.S. tax. The question arises whether this exemption would make investment in low-tax foreign jurisdictions relatively more attractive than it currently is. This is the so-called "runaway plant" problem, wherein production is shifted to foreign jurisdictions to take advantage of low tax rates. We argue that although exemption of foreign income under an income tax does lead to incentives to locate tangible capital in low-tax jurisdictions, this is not necessarily the case under a consumption tax. In fact, switching to a consumption tax likely would result in a greater preference by MNCs for investment in the United States, even as compared to investment in low-tax countries in many cases.

Table 1 presents some numerical examples that illustrate the effects of the different tax systems on the production location choices of MNCs. The examples are constructed so that the foreign income tax rate is substantially lower than the domestic tax rate. For purposes of simplicity, the foreign tax rate is 10 percent, and the domestic (U.S.) tax rate is 25 percent, whether on an income or a consumption base. The pre-tax rate of return to investment in a machine is assumed to be equal to 10 percent in each location. For simplicity, it is assumed that there is no depreciation of

the machine. The cost of the machine and the value of its output are assumed to be the same in each location, thereby implicitly establishing the consumption tax as following the origin principle.<sup>12</sup>

The first two columns of the table illustrate the situation when the domestic tax is on an income base. Columns (i) and (ii) show the global neutrality of the tax system if foreign income is taxed with a credit provided for foreign taxes paid; taxes do not affect the location choice. Column (ii) illustrates the case when there is no deferral of tax on the foreign income (i.e., all earnings are treated as being immediately repatriated as dividends) and no cross-crediting. We turn to the effects of those complications below. The results in rows (11) and (12) show that under these assumptions the tax system is neutral to the location choice for investments. An investment with a pre-tax return of 10 dollars (10 percent) leaves an after-tax return of 7.5 dollars (7.5 percent) to the investor whether it is undertaken in the foreign country or at home.

Column (iii) shows the after-tax return from locating the production in the low-tax foreign country when foreign income is exempt from tax. Comparing the results in columns (i) and (iii), illustrates that when the domestic tax is on an income base exemption of foreign income provides an incentive to locate the project in the low-tax foreign jurisdiction, since the after-tax rate of return rises from 7.5 to 9 percent.

Comparison of columns (iv) and (v) of the table show the results for domestic and foreign investment, respectively, when the domestic tax is an R-based consumption tax. The results in row (12) illustrate that, at the margin, exemption of foreign income no longer provides an incentive for investing in the low-tax foreign country. In fact, the after-tax rate of return for domestic investment is now 10 percent, the same as the pre-tax rate of return and higher than the 9 percent after-tax rate of return in the low-tax jurisdiction. This result obtains because the consumption tax does not tax the return to new investment at the margin, whereas a standard income tax at any positive rate does.

This preference for domestic investment may not, however, hold where there are supernormal



returns that could be earned if the investment was undertaken in either location, i.e., if the supernormal returns are portable rather than being location-specific rents. As shown below in the discussion of the origin and destination principles, under an origin-principle consumption tax there may be an incentive to locate in low-tax foreign countries to save tax on supernormal returns. In this case, the incentive to locate in low-tax jurisdictions will largely depend on the scope for income shifting through transfer pricing practices.

Even if a switch to a consumption tax did not eliminate the incentive for MNC investment in low-tax jurisdictions in all cases, it would likely make the United States a *relatively* more attractive location as compared to the current tax regime--and it would clearly be relatively more attractive than investment in high-tax jurisdictions. This is particularly apparent when it is recognized that the current U.S. tax regime, although it provides for taxation of foreign income with a credit for foreign taxes paid, resembles in many respects the exemption system of column (iii) of Table 1 as much as the ideal foreign tax credit system of column (ii). One feature pushing the system in that direction is deferral, which can substantially reduce the present value of U.S. tax on the income of foreign subsidiaries of U.S. companies. In fact, Hartman (1985) has shown that deferral can be equivalent to exemption in its effects when foreign investment is financed out of a subsidiary's retained earnings. Furthermore, the ability to cross-credit, so that excess credits from high-tax foreign income can be used to offset U.S. tax on low-tax foreign income, also can push the system towards an exemption system in its effects. Where a U.S. MNC has excess foreign tax credits overall, there is effectively no U.S. tax on additional income from a low-tax foreign source. Based on calculations using 1990 data, Grubert and Mutti (forthcoming) show that the average effective U.S. tax rate on the foreign income of U.S. MNCs from active investments is remarkably low, about 2 percent when calculated using a standard definition of foreign income and *negative* if foreign income is defined to exclude royalty receipts.

Is the relative increase in the incentive for U.S. MNCs to invest in the United States a good thing from the perspective of national or global welfare? Table 1 can again provide some insight on this issue. Comparison of columns (iv) and (v) shows that in deciding where to locate production, under a consumption tax a U.S. MNC would compare the pre-tax return in the United States--which in this case is the same as the after-tax return--to the after-foreign-tax return abroad. From the perspective of the national welfare, the consumption tax clearly results in the correct comparison, since the United States only receives the after-foreign-tax return to foreign investment.<sup>13</sup>

From the perspective of global welfare, this is not the appropriate comparison. To maximize the efficiency of the international allocation of capital, taxes should not affect the decision where to locate capital. This is the case in column (ii), where the credit for foreign taxes means that the project that earns a 10 percent rate of return in both jurisdictions before tax earns an equal rate of return (7.5 percent) in each jurisdiction after-tax. However, as explained above, the effects of the current tax system depart substantially from the simple example in column (ii) in the direction of the exemption system of column (iii), so that there is a tax motivation for investing in low-tax countries. Consequently, switching to a consumption tax may cause a shift away from investment in low-tax countries, which would tend to improve global efficiency. But this move in the direction of global efficiency must be balanced against the reduced incentives for U.S. investment in high-tax countries. In fact, a consumption tax would give all U.S. MNCs greater incentives to reduce foreign taxes and thus would cause a shift of investment from high-tax countries to the United States and other low-tax countries (e.g., from Germany to Ireland) at the expense of global efficiency.

### *Location of production by foreign MNCs*

In the case of investment by a foreign MNC, the effects of moving to a consumption tax may

vary depending on the tax rules of the home country. Where the home country exempts foreign income,<sup>14</sup> the story illustrated in Table 1 still holds true, and investment in the United States would become relatively more attractive. Where the home country taxes foreign income and provides a foreign tax credit,<sup>15</sup> the story is somewhat more complicated. To the extent that the reduction in U.S. tax on capital income results only in a reduction in the home country foreign tax credit, the U.S. is merely ceding tax revenue to the home country fisc without affecting the MNC's investment incentives. However, as discussed above, deferral and cross-crediting should enable many MNCs to keep a significant part of the benefit from eliminating taxes on income from new capital.

An additional issue is whether countries that provide a credit for the current U.S. corporate income tax would also allow a credit for any portion of a consumption tax. Some countries that have considered a business cash-flow tax (as part of a consumption tax system) in place of a corporate income tax have been deterred by the perception that other countries might not provide a foreign tax credit for such taxes. Typically, countries that provide foreign tax credits do so either by domestic law or by tax treaty for taxes that look like corporate income taxes. Because the rationale for providing the credit is to preserve neutrality in the location of capital, the credit should apply to taxes imposed on capital income, such as a standard corporate income tax. Consumption taxes generally would not qualify simply because they are imposed on consumption and not on income.

There is, however, an argument for permitting a credit for a component of a consumption tax, but the argument applies only when the tax is imposed on the origin principle and there are supernormal returns, and even in this case it depends on the origin of the supernormal returns.<sup>16</sup> For tangible investment with normal returns, an investment in the United States at the margin would not be affected by the provision of a home country credit because the initial reduction in credits when the investment is expensed, and U.S. tax is reduced, exactly offsets the value of the credits from the U.S. tax on the future returns from the investment. And, as we show below, under a destination-principle

consumption tax foreign investors would effectively bear no U.S. tax on normal or supernormal returns, so that no home country credit for U.S. taxes would be called for. But, as explained below in the discussion of the origin and destination principles, under an origin-principle consumption tax investment in the United States would bear a tax on supernormal returns. In this case, the lack of a home country foreign tax credit for the U.S. tax on supernormal returns might discourage investment in the United States as compared to countries that imposed taxes that were creditable in the home country. However, this disincentive to investment in the United States could only arise to the extent that the supernormal returns were not specific to the United States and could be earned if the MNC operated in other locations. Moreover, if the supernormal returns were attributable to intangible assets, then appropriate application of transfer pricing rules would lead the supernormal returns to be taxed in the United States only if the intangible asset was created in the United States, and, consequently, the U.S. tax, and its creditability, would have no impact on the decision where to exploit the intangible asset. Of course, the application of transfer pricing rules is unlikely to be perfect.

Given the narrowness of the creditability issue, it seems likely that moving to a consumption tax would lead to increased investment in the United States by foreign MNCs whether or not other countries provided credits for any part of the U.S. tax.

### *Origin versus destination principle*

It is often claimed that a destination-principle consumption tax, because it exempts exports and taxes imports, promotes exports and discourages imports. There is great intuitive appeal to the idea that the exemption of tax on exports would encourage firms to locate production to supply foreign markets in the United States rather than abroad, and the tax on imports would encourage

firms to replace imports with domestic production.<sup>17</sup> Economists have long held that this notion is a fallacy and that, for flat rate consumption taxes, the destination and origin principles are equivalent in their effects on trade and investment at the margin.<sup>18</sup> We will briefly run through this argument here.

We start with the balance of payments identity:  $X + NII = M + dFK$ , where  $X$  is merchandise and service exports,  $NII$  is net investment income receipts,  $M$  is imports and  $dFK$  is the net change in the holdings of foreign assets. We distinguish here between the export of "real" services such as computer software, included in  $X$ , and investment income, which is frequently included in the service account in the balance of payments.

As explained previously, the aggregate base of a consumption tax is domestic consumption under the destination principle and domestic consumption plus net exports ( $X - M$ ) under the origin principle. If capital is not mobile, so that trade must balance at each moment in time,  $X = M$  and the equivalence of the bases is straightforward. A tax on imports is the same as a tax on exports because exports are being exchanged for imports and the same burden is imposed on that exchange irrespective of whether the tax is nominally on imports or exports. Now suppose that investment abroad is possible and consider the effect of a net increase in the holding of foreign assets. This has to be financed with an increase in exports relative to imports, since investment income cannot change immediately (because it is determined by the initial holding of foreign assets). In real terms, the foreign assets are being acquired in exchange for U.S. exports. The net exports will be in the current origin-principle base but not in the current destination-principle base. But, on the margin, an extra dollar of foreign investment will finance future imports (purchased with the investment income) with a present value of one dollar (since trade must balance over all time). In real terms, the real return to the marginal foreign investment is paid out in a stream of future imports that is equal in present value to the value of the U.S. exports that financed the foreign investment. Thus, taxing the current marginal export is equal in present value terms to taxing the stream of imports generated by that

marginal export, and the tax bases are equivalent at the margin.

A numerical example may help to make clear the equivalence between the bases at the margin. Table 2 extends the example presented in Table 1 to consider the investment location choice under destination- and origin-principle taxes.

To start we must first consider the effects of the different tax bases on relative price levels as shown in row (1). As illustrated there, switching from an origin- to a destination-principle consumption tax causes the foreign price level to fall relative to the domestic price level by a proportion equal to the consumption tax rate. To see why this must be so, consider an export good that under the origin-principle tax sells for one dollar in both locations. If the switch is made to the destination principle, and there are no price level adjustments, equilibrium cannot be maintained, since a good that can be sold for one dollar domestically garners one dollar if exported plus a rebate of consumption tax equal to 25 cents. To restore equilibrium the relative foreign price level must fall so that a good selling for one dollar domestically only gets 75 cents abroad.<sup>19</sup> It is easy to show that the same argument holds for imports as well.

Returning to the example in Table 2, this means that under the destination principle the domestic cost of the machine is 100 dollars and the foreign cost only 75 dollars. But, although the real net output of the machine is assumed to be the same in both locations, because of the price level difference its value is 25 percent lower in the foreign location, as illustrated in row (5). The consequence is that there is no difference in the results under the destination and origin principle at the margin. In each case, the pre-tax and after-tax rates of return to domestic investment are the same, 10 percent. And in each case, the after-tax rate of return to foreign investment is 9 percent.

While the origin and destination principles are equivalent in their effects on international trade and investment at the margin, they differ in the presence of supernormal returns. Comparing rows (9) and (10) of the table, under the destination principle the higher rate of return for the domestic

investment goes along with a higher dollar return per machine, whereas under the origin principle the higher rate of return for the domestic investment goes along with a *lower* dollar return. Under the destination principle, the U.S. MNC effectively gets the benefit of expensing for foreign investment, since the after-tax cost of the investment is the same abroad as it is at home, but tax is also effectively paid on the stream of cash flow returning from a foreign investment by a U.S. MNC. In real terms, the rebate of tax on the U.S. exports that finance the foreign investment is equivalent in value to the foregone expensing for a domestic investment, and the tax on the stream of imports that represents the real return to the foreign investment is equivalent to the tax on the cash flow from a domestic investment.

Under the origin principle, there is no equivalent to expensing for foreign investment, since the pre-tax cost of investment is the same at home or abroad, but there is no effective tax on the returning cash flow from the foreign investment. In real terms, there is no rebate of tax on the U.S. exports that finance the foreign investment, but there is also no tax on the stream of imports that represents the real return to the investment. Under the origin principle, the lack of expensing for foreign investment represents, in effect, a prepayment of tax on the return from foreign investment. But if there are supernormal returns to the investment, then the "prepayment" of tax on the initial foreign investment under the origin principle is smaller than the present value of the effective taxes that would be paid under the destination principle, and the difference is equal to the present value of the tax on the supernormal returns. Therefore, the U.S. MNC's supernormal returns bear tax under the destination principle whether they are earned at home or abroad. It follows also that a foreign MNC's supernormal returns from U.S. investment escape U.S. tax under the destination principle but not under the origin principle.

Note that under the destination principle a U.S. resident can avoid U.S. tax on the return to investment--whether it is a foreign investment or a domestic investment--if he moves abroad. In that

case the real return from the investment does not incur an import tax. The tax cannot be avoided under the origin principle because it is effectively prepaid. Under the origin principle, the U.S. resident does, however, avoid tax on the return from the foreign investment if it was made prior to the date when the tax was imposed. In that case there would have been no prepayment of tax on the foreign investment and no tax on the consumption financed by the investment return. These points will be important in our discussion of tax avoidance and transition incidence issues below.

### *Location of intangible assets*

In addition to affecting MNC decisions concerning the location of their physical capital and production facilities, switching to a consumption tax system could also influence MNC decisions as to where to exploit intangible assets such as patents and know-how. Under current law, U.S. companies with excess foreign tax credits have an incentive to exploit a U.S.-created intangible asset abroad because the royalty income that returns to the United States can escape both U.S. and foreign tax. This occurs because the royalty payments are generally deductible in the foreign country and, being classified under U.S. law as foreign-source income, excess foreign tax credits can be used to offset any U.S. tax liability on the royalty. In contrast, a consumption tax generally would not influence the choice between exploiting an intangible asset at home or abroad.

A numerical example is again useful to illustrate this point. Once again the distinction between origin- and destination-principle consumption taxes must be dealt with. As already discussed, we would expect that under a consumption tax royalty receipts from abroad would be treated as payments for an export, and therefore would be exempt under the destination principle and taxed under the origin principle. The exemption of foreign royalty receipts may create the appearance that a destination-principle tax favors foreign exploitation of intangible assets in order to avoid U.S.



tax, but appearances can be misleading.

Table 3 presents the case of an intangible asset that produces 100 dollars of value added if used in the home country, yielding a return after tax of 75 dollars. It produces the same real output if used abroad. Under the origin principle, the returning royalty of 100 dollars, which captures the value of the intangible,<sup>20</sup> is taxed, yielding the same after-tax return of 75 dollars.<sup>21</sup> Under the destination principle, the returning royalty is untaxed, but the 25 percent foreign-domestic price differential that exists under the destination principle means that the value added, and the required royalty, is only 75 dollars. Thus, the consumption tax, whether it follows the origin or destination principle, does not distort the choice of location for exploiting the intangible asset if appropriate royalties are paid.<sup>22</sup>

What if the appropriate royalty is not paid? Where there is imperfect enforcement of transfer pricing rules, MNCs are able to set royalties that do not fully capture the value of an intangible asset being transferred between members of the MNC group. The issue here is closely related to the issue of supernormal returns discussed earlier, since supernormal returns apparently earned by an MNC in one country may actually be the result of an intangible asset created in another country. Row (6) of Table 3 illustrates the case in which no royalty at all is paid for the transfer of the intangible asset to the foreign location. The results are very different under the destination and origin principles. Under the destination principle, the MNC gains no benefit from shifting the intangible income to the foreign location, and loses to the extent that there is any foreign tax on that income. Under the origin principle, the MNC gains as long as the foreign tax rate is lower than the domestic tax rate. Thus, the possibility of tax avoidance through transfer price manipulation may provide an incentive to locate intangible assets in low-tax foreign countries under an origin-principle tax, but not under a destination principle tax.

To summarize, movement to a consumption base would eliminate the incentive for locating

U.S.-created intangible assets abroad that is created under our foreign tax credit system when a company has excess foreign tax credits. Under an origin-principle consumption tax, there would still be an incentive to move intangible assets to low-tax jurisdictions to exploit transfer pricing opportunities, but this incentive would be little different than it is under the current income tax. The greater neutrality in the tax treatment of intangible assets that would be achieved under the consumption tax proposals is not, however, inherent to the consumption base. The same neutrality could be achieved under our income tax if royalty receipts were treated as domestic-source income. In that case, excess foreign tax credits could not be used to eliminate U.S. tax on receipts of royalties from abroad. Under an income VAT, the same neutrality would hold as long as royalty receipts were treated consistently with the origin- or destination-principle treatment of exports and imports under the tax.

### ***Location of R&D***

MNCs sometimes also face a decision about the location of their investment in the creation of intangible capital through R&D.<sup>23</sup> Since these investment expenditures are currently expensed in the United States and most other countries, consumption tax treatment would not represent a direct change.<sup>24</sup> There likely would be some modest shift in R&D activity to the United States because U.S. companies would no longer have to allocate a portion of R&D expense against foreign income as they do under current U.S. tax rules. This allocation represents a partial disallowance of deductions for R&D expense for firms that have excess foreign tax credits, since the deduction is against foreign income that bears no U.S. tax in any case. Thus, replacement of current rules with a consumption tax system would eliminate a tax rule that provides some disincentive to perform R&D in the United States.

Here again the result is not inherent to the consumption tax aspect of the proposals. If under our income tax all royalties were treated as domestic-source income, then it would make sense to allocate all R&D expenses against domestic income, thereby eliminating the tax incentive to locate R&D activities abroad.

### *Location of debt*

Because under the R-based flat tax and USA business tax plans (or, for that matter, an income VAT) interest expense would no longer be deductible in the United States, but would, presumably, remain deductible abroad, U.S. and foreign MNCs would have an incentive to shift debt to the books of their foreign affiliates.<sup>25</sup> The extent to which this would happen depends on the substitutability of borrowing by foreign affiliates for borrowing by a U.S. affiliate. There is some empirical evidence for such substitutability.<sup>26</sup> The revenue costs of such debt shifting would be at the expense of foreign fiscs and not the United States.

### *Overall Effects on Net Capital Flows, Interest Rates and the Capital Stock*

While replacement of the current income tax with a consumption tax is likely to increase the amount of business investment in the United States, the overall effect on net capital flows and the capital stock is more difficult to determine. To examine this issue we need to take into account differences in effects on debt- and equity-financed investment and tax-favored sectors such as owner-occupied housing, non-corporate business, tax-exempt bonds and entities such as pension funds and non-profits.

Because the relative change in the tax treatment of debt- and equity-financed investment is of

particular importance in the analysis, it is useful to outline first what we are assuming about the relationship between the two forms of finance in capital market equilibrium. The returns to debt and equity presumably reflect the division of risk among the owners of the different types of claim. But debt and equity are not perfect substitutes; otherwise, given the current tax bias in favor of debt finance there would be no equity financed investment. We assume that a tax change directed at debt, such as the non-deductibility of interest, will lower interest returns relative to equity returns because there are risk-averse investors with a preference for debt. Similarly, an influx of risk-averse investors will lower interest rates relative to equity returns. In other words, we assume that the trade-off between risk and return can change in response to changes in tax provisions as well as changes in the distribution of investor preferences.

We start the analysis by examining the effects of consumption taxes in a closed economy. After describing the changes in this economy when consumption taxes are introduced, we see how those effects may be altered by the international mobility of goods and capital.

### *Closed economy analysis*

We start by considering the corporate sector of the economy in isolation. It should be clear that the after-tax rate of return on equity investment goes up very dramatically in the movement to a consumption base. Rather than equity investors bearing a double tax on corporate income, as under our classical income tax, on the margin they receive the full pre-tax return to capital.

The effect on interest rates and debt financed investment is less obvious. Debt investors should now receive a higher after-tax return because of the elimination of tax at the personal level. But the effect on interest rates depends both on investors demands and the interest rates companies are willing to offer in view of the real return to capital and the tax system. Consider the extreme case, in

the initial classical income tax, of an investment with 100 percent debt financing and no inflation. Assuming economic depreciation, before the tax at the personal level bondholders will just receive the pre-tax return to capital because the interest return is deductible at the corporate level. The switch to expensing and non-deductibility of interest in a consumption VAT leaves interest rates that companies offer unchanged. The value of the current expensing is just equal to the present value of the interest deductions lost. Companies are still willing to offer the same pre-tax rate of return to bondholders, because expensing just offsets the non-deductibility of interest.

In this 100 percent debt financing case, interest rates will only fall if there is an increase in saving and a resulting lower pre-tax return to capital. If we reintroduce equity into the economy, interest rates can rise or fall because companies will adjust their financing choices while capital owners adjust their portfolio choices. Since interest is now non-deductible while the treatment of dividends at the business level has not changed, companies will offer less debt and more equity for given corporate level returns, and this will tend to lower interest rates. But capital owners may insist on higher interest rates in order to compete with higher after-tax equity returns. The net effect of arbitrage between debt and equity by businesses and capital owners is uncertain.<sup>27</sup> The non-deductibility of interest can be expected to lower interest rates relative to equity returns, but since expensing will raise the overall return to capital, interest rates may still rise in absolute terms.

Overall, the case made by Hall and Rabushka (1995) for a large drop in interest rates, based solely on the elimination of taxes on corporate capital income, does not seem strong, even in a closed economy. Hall and Rabushka seem to ignore the implications of capital expensing for the interest rates that companies are willing to offer.

These results may be altered in several respects if we consider the effects of the empirically important non-corporate sector, owner-occupied housing, tax-exempt bonds issued by state and local governments, and the many tax-exempt entities such as pension funds that receive investment income

free from tax at the shareholder level.

Under the consumption tax proposals, the (approximately 10 percent of total) debt in the form of tax-exempt bonds would lose its advantages over taxable business debt. If mortgage interest deductibility is eliminated, as in the flat tax but not the USA individual tax, investment in home ownership would lose its tax-favored status. These changes would lead to shifts of capital out of the state and local government and housing sectors to the business sector, dampening the rise in business equity returns brought about by the shift to a consumption tax and tending to lower interest rates for business investment. The non-corporate sector would also lose its tax advantage over the corporate sector, so that capital would shift to the corporate sector, further dampening the rise in after-tax returns to corporate equity and lowering interest rates.

On the other hand, the large amount of investment income currently received by tax exempts means that the increase in saving induced by a consumption tax is likely to be much weaker than would otherwise be predicted.<sup>28</sup> This would tend to accentuate the rise in equity returns and moderate any decline in interest rates. Nevertheless, it appears likely that the shift of capital out of the state and local and housing sectors would more than offset the effect of the smaller increase in saving. Taking into account these complicating features of the U.S. capital market, on balance it seems likely that interest rates would fall. And after-tax equity returns would probably still rise, but by somewhat less than would be expected if the corporate sector were considered in isolation.

### *Open economy effects*

The extent to which the open economy would alter the results just presented depends largely on the degree to which capital is internationally mobile. There has been substantial controversy on this subject.<sup>29</sup> We cannot resolve this issue here, but examination of cross-border asset holdings

indicates that, at the least, there is a significant degree of integration of global debt markets. Federal Reserve Board and Bank for International Settlements data indicate that cross-border lending in U.S. dollars is comparable in size to borrowing by U.S. business.<sup>30</sup> These data on the worldwide pool of dollar assets suggest a substantial elasticity in the supply of debt to U.S. business.<sup>31</sup>

To the extent that portfolio debt capital is internationally mobile, the downward pressure on interest rates, caused largely by the reduction in borrowing by the housing and state and local sectors described above, would cause an outflow of debt capital. Because the return to debt capital is currently untaxed at the corporate level (because interest is deductible), and by law portfolio interest is exempt from any withholding tax, foreign debt investors obtain no direct benefit from the tax changes and any tendency for dollar interest rates to fall will make foreign currency debt relatively more attractive. In addition, because the tax treatment of foreign and domestic interest income would be the same for U.S. residents, a fall in dollar interest rates would make foreign currency debt more attractive to them as well.

In an open economy, there is an additional factor that may reinforce the downward pressure on U.S. interest rates. As discussed previously, the non-deductibility of interest in the United States is likely to lead MNCs to shift borrowing to the books of their foreign affiliates. If this debt continues to be in dollars, which would seem likely because borrowing in dollars is now likely to be cheaper, there would not be much effect on U.S. interest rates. But if more borrowing is in foreign currencies, there will be a greater tendency for U.S. interest rates to fall.

The resulting outflow of debt capital due to the shift of capital from the housing and state and local sectors would tend to dampen the decline in U.S. interest rates predicted by the closed economy analysis. In the polar case of perfect capital mobility, there would be no decline at all in U.S. interest rates. The extent of this effect depends on the elasticity of demand for capital in the business sector relative to the elasticity of the worldwide supply of debt to the U.S. business sector. It is not

necessary to believe in a very high degree of international debt mobility to expect that any decline in interest rates that would occur in an closed economy would be substantially reduced in an open economy.<sup>32</sup>

To the extent that equity capital is internationally mobile, the rise in after-tax equity returns in the United States brought about by the shift to a consumption tax would lead to an inflow of equity capital. However, as described above, the shifts of U.S. capital from the non-corporate business, housing and state and local sectors to the corporate sector should restrain the rise in corporate equity returns. Since foreign investment in U.S. equity is concentrated in the corporate sector, the inflow of equity is likely to be significantly dampened by the shift of domestic capital into the corporate sector.

The net result of the equity inflows and debt outflows is uncertain. Because debt capital is likely much more mobile than equity capital, the debt outflows could be larger than the equity inflows, leaving a net capital outflow. Investment in the U.S. business sector would increase, but the capital that flows out of the housing and state and local sectors might in part go abroad. If the domestic savings response to the increase in after-tax returns to capital is relatively small, the result could conceivably be a decline in the U.S. capital stock.

Even if replacement of the current income tax system with a consumption tax resulted in net capital outflows and a decline in the U.S. capital stock, this does not necessarily mean that the United States would lose from the transition. The gains from a more efficient allocation of capital within the U.S. economy might outweigh any losses from resulting capital outflows.

The role of debt outflows described above is not limited to reforms that involve a consumption base. In fact, these effects would be even larger under an income base, such as an income VAT, that provides for non-deductibility of interest because there is no benefit of expensing to offset the elimination of interest deductibility. If interest rates remained stable because of the integration of world debt markets, the cost of debt financed business capital in the United States



would rise substantially. This effect could outweigh the benefit to equity in the form of the dividend exemption that would go along with such a reform. Grubert and Mutti (1994) simulated the effect of "backward integration" of corporate and personal income taxes, which is similar to an income VAT in its treatment of capital income, and found that even with moderate international mobility of debt investment the U.S. capital stock could decline by over 5 percent in the long run.<sup>33</sup>

## **EFFECTS ON SIMPLICITY AND TAX AVOIDANCE OPPORTUNITIES**

### ***Positive Effects on Simplicity and Compliance***

Because foreign income need not be defined under a consumption tax, the tax code's source rules and the associated rules to allocate expenses between domestic and foreign income could be substantially simplified or would become unnecessary. Under an origin-principle consumption VAT or flat tax, expense allocation rules would be entirely irrelevant. All purchases by a U.S. business would be immediately deductible. Under a destination-principle consumption VAT, such as the USA business tax, the treatment of purchases would be the same, except that payments for imported goods, services or intangible assets would effectively be non-deductible. Export sales would be exempt under a destination-principle tax, but all expenses would remain deductible in order to relieve the tax burden on all earlier stages of production. Under either of these forms of consumption tax, interest allocation rules would be unnecessary, since interest would not be deductible.

Under an income tax it would, in principle, also be possible to eliminate perhaps the two most important expense allocation rules. First, because under an income VAT interest is also non-deductible, interest allocation rules would be irrelevant. Second, if under an income tax all royalty receipts from abroad were treated as domestic income, rather than being treated as foreign income as

under current law, then it would be logical to allocate all research and development expense against domestic income.

The foreign tax credit rules provided under current law would become unnecessary under a consumption tax regime. These rules contain substantial complexity, including, for example, nine separate foreign tax credit baskets for different types of foreign income and look-through rules to retain the character of income when passed through tiers of foreign subsidiaries, and there are associated complications such as the need to determine the "earnings and profits" of foreign subsidiaries according to U.S. tax rules. The extent to which these rules realistically could be simplified within an income tax regime is uncertain. Many of the complexities result from attempts to achieve reasonable policy objectives, such as limiting the incentive to move passive or other investments to low-tax jurisdictions that is created when excess foreign tax credits can shield the related income from U.S. tax. Although exemption of foreign-source income would eliminate these rules, it would greatly accentuate the incentive to shift investment (and profits through transfer pricing) to low-tax jurisdictions.<sup>34</sup>

As a general rule, a U.S. shareholder in a foreign corporation, whether an individual or a company, pays no tax on the income earned by the foreign corporation until it is distributed. This creates an incentive for MNCs to avoid U.S. tax by having a foreign subsidiary in a low-tax jurisdiction hold passive investments. It creates an incentive for any U.S. taxpayer, corporate or individual, to hold passive investments in low-tax foreign jurisdictions through the vehicle of a foreign corporation. The tax code contains some fairly complicated rules that counteract this incentive by providing for current taxation of income from such investments.<sup>35</sup> A related compliance concern is that tax evaders may escape U.S. tax on investment income by keeping their money in secret accounts in tax havens, presenting a difficult enforcement challenge for the tax authorities. Since investment income is untaxed under a consumption tax, there no longer would be any tax

motivation to keep passive investments abroad, and these rules and compliance concerns would be irrelevant.

Interest deductibility under standard income tax systems creates the incentive for MNCs to arbitrage across countries with different tax rates by shifting their borrowing out of low-tax countries and into high-tax countries. The U.S. earnings stripping and interest allocation rules are designed to limit this kind of arbitrage. They would clearly be unnecessary under a consumption tax system in which interest is not deductible.<sup>36</sup> As noted already above, this result is not, however, inherent only to the consumption base, since an income VAT would also disallow interest deductions.

One of the more problematic areas of international taxation arises because of the need for MNCs to set internal transfer prices for transfers of goods, services and intangibles across borders between different members of the multinational group. These transfer prices directly affect the amount of income reported in each jurisdiction. A compliance problem can be created because an MNC will have an incentive to set these prices so as to shift income from high-tax jurisdictions to low-tax jurisdictions. The U.S. tax rules incorporate the internationally accepted standard for setting transfer prices, which is that they should be set at the level that would have prevailed had the parties been dealing at arm's length. However, application of this standard can be problematic and can involve considerable compliance and administrative burdens. The volume and variety of these transactions is high, and they can involve the transfer of unique goods, services or intangible assets that are difficult to value because there are no comparable transactions between unrelated parties.

Whether transfer pricing problems remain an issue under a consumption tax depends on whether the origin or destination principle is adopted. Under a destination-principle consumption tax, such as the USA business tax, transfer prices would no longer be relevant to the determination of U.S. tax liabilities because a company's tax base would be equal to its domestic sales less its domestic purchases. Because export sales (and, presumably, royalty receipts from abroad) would be exempt

and imports (and royalty payments to foreign parties) effectively non-deductible, the prices established for such transactions would not affect the U.S. tax base. Therefore, opportunities to use transfer prices to reduce U.S. taxes would be eliminated. But, because transfer pricing profits into the United States would not increase U.S. taxes, there would be an incentive to shift profits out of other countries and into the United States.

Under an origin-principle consumption tax, such as the flat tax, transfer pricing would continue to be an issue for U.S. taxes, since export sales would continue to be taxable and imports deductible. As is true under our current tax system, the magnitude of the incentive to shift income out of the United States through transfer prices would depend largely on the U.S. tax rate.<sup>37</sup>

Returning to table 3, columns (ii) and (iii) of row (6) illustrate the transfer pricing incentives for royalty payments under the origin and destination principles. The results in this row are derived assuming that no royalty is paid to the United States, so that an additional foreign tax, at a 10 percent rate, is paid on the profits shifted into the foreign country. Under the destination principle, the net return is only 67.5, less than if the royalty had been paid, because an additional foreign tax is incurred without any reduction in U.S. tax. Under the origin principle, however, the net return is 90, greater than the return if the appropriate royalty had been paid.

Under an income VAT, the advantageous properties of the destination principle with respect to transfer pricing incentives are somewhat diminished. Incentives for shifting profits through transfer pricing would still exist for imports of capital equipment. The import would be taxed at the border, but the company would not have a fully offsetting current deduction for the purchase, since the cost of the capital equipment would be depreciated rather than being expensed. The difference between the price of the equipment and the present value of the depreciation deductions would create an incentive to lower the stated price. In addition, if foreign income was taxed and a foreign tax credit provided under either a destination- or origin-principle income tax, there would be incentives to

shift income to low-tax countries when excess foreign tax credits could offset additional U.S. tax on foreign income.

### ***New Complexities and Tax Avoidance Problems***

#### ***Identifying taxable imports and exempt exports under the destination principle***

The experience of countries that impose VATs shows that application of a destination-principle consumption tax can create compliance problems and complexities due to the need to distinguish between deductible domestic purchases and effectively non-deductible imports and between taxable domestic sales and exempt exports. The extent of these problems depends on the controls at the border, the type of consumption tax (subtraction method versus invoice-credit method) and the type of imports or exports (merchandise or services).

The problem for imports is reduced if the credit-invoice method is used, since a company would presumably only get a credit for taxes on its purchases if it can show that those taxes have actually been paid, either at the border on imports or at an earlier stage of domestic production. Under the subtraction method, the problem for merchandise imports is also much reduced if, as in the USA business tax, there is a tax at the border, because then the importing business does not have to distinguish between deductible and non-deductible expenses. But if under a subtraction method tax there is no tax at the border, the problem can be substantial because a company must distinguish between domestic purchases and imports--only the former are deductible--even though the goods may be identical.

Although it is relatively straightforward to impose a tax on merchandise imports, it is not so easy in the case of imported services. For example, foreign software, advertising or consulting

services could be transmitted by report, disk or over a satellite. Tax auditors would presumably rely on billing addresses, but since domestic addresses could easily be arranged, a series of transactions might have to be examined.

An additional level of complexity would be added in cases in which a service was provided partly domestically and partly from abroad. For example, an international consulting firm might prepare a report to which both its New York and London offices had contributed. The fee for this report would need to be divided into two separate components representing compensation for the services performed by the two different offices. In principle, this division does not affect the total tax base, as long as the component that does not bear import tax is included in the receipts of the New York office for U.S. tax purposes. Additional difficulties with respect to financial services provided by financial intermediaries are discussed below.

Consumers would also have the incentive to use foreign services, such as credit-card processing. Cross-border shopping could also be an issue. International mail order for merchandise would not seem to create a new problem as long as customs duties are imposed on packages, as under the current system.

Compliance problems would also arise in identifying true exports. Goods could be shipped from one U.S. port and landed in another. Problems of this kind have been encountered in the case of ozone depleting chemicals, whose domestic use is subject to a high tax under current law.

These problems would be particularly severe if a destination-principle VAT was imposed at a very high rate, such as would be required to replace the income tax entirely. If the states followed suit and replaced their sales taxes with a VAT modelled off the federal VAT, the combined tax rate would likely be very high in comparison to other VAT countries. The USA proposal, however, does not contemplate an unusually high tax rate as compared to other VAT countries, since it is combined with a consumed income tax on individuals.

*Are financial intermediaries more of a problem in an open economy?*

The familiar problem of financial intermediaries in R-based consumption tax schemes, such as a VAT, arises because of the dichotomy between real and financial transactions. Interest payments and receipts are ignored. Therefore, services provided in exchange for interest rate spreads, e.g., transactions services to consumers instead of higher interest rates on their checking account balances, are not subject to tax.

This problem would seem only to exist for services to consumers. If untaxed financial services are provided to a business, it gets no deduction (or credit) but has to pay tax on the final sale. The same is true for loan expenses incurred by a bank on its business loans. Tax will be paid on the full gross product of the loan at the business (borrower) level. In addition, some financial services, such as investment management, are often investment rather than consumption. These services are provided with the object of producing a higher return from the investor's capital. The value of the goods or services produced with that capital is taxed. In these cases all the proper tax can be collected when the goods and services are sold to consumers, and the imputation of interest spreads on loans proposed by Hall and Rabushka (1995) seems largely unnecessary. With equal tax rates for all business taxpayers, the failure to impute income to one of the stages is offset by the absence of a deduction at the next stage.<sup>38</sup>

International transactions would not seem to exacerbate the problem of untaxed financial services to a great extent. Under the destination principle, service exports would be exempt, and service imports by business non-deductible, anyway. The problem in this case would be largely limited to the direct import of services by consumers. Under the origin principle, the distortions created might be greater, since service exports should be taxed and imports deducted; however, the direct import of services by consumers would no longer be an issue, since such services should be

untaxed anyway.

If it is deemed necessary to impute service fees to the transactions of financial intermediaries, then international transactions will add some complexity. It will be difficult to determine the appropriate allocation of imputed fees to foreign customers.

### ***Reclassifying sales receipts as interest***

Because of the dichotomy between real and financial transactions, R-based consumption taxes create an incentive to reclassify part of the taxable sales price of a good sold to consumers as non-taxable interest on an installment sale. In an open economy, this incentive also exists under the origin principle for sales to foreigners in an income tax country because only the sales component would be taxable in the United States but the foreigner can deduct both sales and interest components. Similarly, the incentive exists under the origin principle to overstate the purchase price component of imports and understate the interest component. Note that this is essentially a variant of the transfer pricing problem, but these transactions need not be with related parties. The potentially large magnitude of trade receivables could make this a significant problem.

### ***Consumption abroad***

Because the base of a destination-principle consumption tax is consumption in the United States in each period, it can create an incentive for residents to avoid the tax by consuming abroad. One way to do this is through vacationing abroad. Perhaps more importantly, a retiree might avoid the tax by emigrating to some country that imposed a lower consumption tax, or no consumption tax at all. Under a destination-principle VAT, the tax savings from emigration would show itself through



the tax-induced difference between the U.S. and foreign price levels. Under a personal consumption tax such as the USA individual tax, a U.S. taxpayer could benefit from the deduction for savings while accumulating wealth, and then avoid tax when subsequently dissaving by emigrating. The USA individual tax reduces this incentive to some extent by taxing citizens and green card holders on their dissaving even if they no longer reside in the United States and by continuing to tax former citizens and green card holders under some circumstances.

The incentive to emigrate would not exist under an origin-principle tax such as the flat tax. There would be no tax-induced difference between the foreign and domestic price levels. In real terms, the tax on any income earned in the United States is not rebated at the border when it is used to finance foreign consumption, as it is under a destination-principle consumption tax.

## **TRANSITION INCIDENCE**

Some of the more problematic issues associated with adoption of a consumption tax relate to transition impacts.<sup>39</sup> In a closed economy, perhaps the major transition impact is that, in the absence of transition rules,<sup>40</sup> imposition of a consumption tax has the effect of imposing a one-time tax on the existing stock of wealth in the economy.<sup>41</sup> In general terms, with the transition the existing stock of wealth is taxed when it is consumed. In an open economy, an additional issue is the distribution of transition impacts between foreign and U.S. investors. In particular, the issue is to what extent foreign investors in U.S. assets and U.S. investors in foreign assets bear the transition tax. It turns out that the distinction between origin and destination principles is crucial. To simplify the analysis, we examine the international transition effects of introducing a consumption tax while largely ignoring the effects of eliminating our income tax.

We start by considering a 100 percent equity ownership of a U.S. asset existing at the time

the consumption tax is introduced. Introduction of a flat rate consumption tax involves taxing at a given rate all the future cash flow from the asset, if the cash flow is used to finance consumption in the United States. Now consider the effect on a foreign holder of that equity interest if the consumption tax is imposed on the destination principle. In this case, the purchasing power in terms of U.S. consumption of the stream of cash flow from that equity interest will have fallen in proportion to the tax rate at the business level. But recall that the foreign price level will also fall relative to the U.S. price level in proportion to the tax rate. Therefore, the real value to the foreign investor of the cash flow from the U.S. equity interest will not change, and the foreign investor escapes any transition burden from the introduction of a destination-principle consumption tax. Since the real return to a U.S. investment is effectively paid out to foreigners in U.S. exports, the tax on that return is rebated at the border. On the most basic level, a destination-principle consumption tax falls on domestic consumption in each period, so it should not be a surprise that a foreign investor escapes the burden of the tax.

Now turn to the transition effect of imposing a destination-principle tax on a U.S. owner of a foreign asset. In this case, the cash flow from the foreign asset is not directly affected by the tax; however, the relative increase in the U.S. price level means that the cash flow declines proportionately in terms of U.S. purchasing power. More fundamentally, the real return to the U.S. owner of a foreign asset is paid out in imports to the United States, and those imports are taxed under the destination principle. Therefore, the U.S. owner of the foreign asset bears the transition impact of the tax in full, as long as he continues to consume in the United States.

Consider next an origin-principle consumption tax. In this case, there is no change in relative price levels brought about by introduction of the tax. Therefore, in contrast to the case of a destination-principle tax, the foreign equity holder bears the transition burden of the origin-principle tax in the same way as any domestic equity holder would. At the same time, a U.S. owner of foreign

assets escapes the transition impact altogether. In real terms, the exports that represent the real return to the foreign investor receive no rebate of tax under the origin principle, and the imports that represent the real return of the U.S. owner of foreign assets are not taxed.

One conclusion from this analysis is that an origin-principle consumption tax could be expected to impose more of its transition burden on foreigners, to the extent that transition rules do not otherwise affect the burden. This may be viewed as an attractive feature to the extent that it represents a lump-sum transfer from foreigners to the United States. Given that the U.S. net foreign asset position is currently negative, the United States would gain more from the transition tax on the U.S. assets of foreigners than it would lose in transition tax on foreign assets held by U.S. residents.

By focusing on the transition impact on equity holders we have ignored the effects on debt. In general, the analysis of those effects will be little different from the closed economy analysis in which the distribution of transition losses between debt and equity holders depends largely on the price level adjustment that occurs with the transition and the terms of outstanding debt contracts (e.g., whether bonds are indexed).

### ***REACTION OF OTHER COUNTRIES***

In the discussion so far we have implicitly assumed that other countries would not change their tax policies in response to the replacement of the U.S. income tax with a consumption tax. In fact, other countries might well react to the extent that the U.S. policy change threatened to cause significant capital flows to the United States at their expense and to erode their tax bases through MNCs shifting debt from their U.S. books and, under a destination-principle tax, transfer pricing profits into the United States.

Other countries might move to protect their tax bases from the effects of MNC debt shifting

by instituting rules to limit interest deductions, such as thin capitalization rules and rules to allocate interest deductions among the members of a MNC group. Such a reaction would likely have little direct effect on the United States, unless policies were targeted specifically at U.S. MNCs.

Of more consequence would be the pressure other countries might feel to reduce their taxes on capital income. This pressure would come both from the shifting of debt from the United States to those countries and from the likely flows of equity investment from those countries to the United States. The ultimate result could be lower taxes on capital income worldwide, and, consequently, the effects on capital flows to the U.S. that were posited above would be muted.

Whether the overall effect of these changes would push the global economy toward or away from efficiency is unclear. A uniformly lower level of capital income taxes would likely lead to fewer distortions in the allocation of capital across countries and a globally increased return to saving. However, in order to replace lost revenue from capital income taxes, governments are likely to have to raise other taxes, in particular, taxes on labor income, either directly or, following the U.S. lead, through increased reliance on consumption taxes.

### *Tax treaties and withholding taxes*

The analysis to this point has not yet dealt with the implications of moving to a consumption tax system for our network of tax treaties. The United States currently has bilateral tax treaties with over forty countries. These treaties provide substantial benefits to cross-border investment by, among other things, lowering withholding tax rates on cross-border income flows, scaling back the tax reach of host countries and preventing discriminatory treatment of foreign investment by host countries. Most provisions of these treaties apply only to taxes on income, and the United States would be unilaterally eliminating its income tax. The question therefore arises whether other countries would

perceive themselves as unilaterally providing benefits to U.S. investors and receiving little in return under their treaties. In that case, foreign countries might be tempted to terminate their treaties with the United States. It turns out, however, that U.S. tax treaty partners would have incentives to maintain their treaties with the United States, particularly if the United States retained its statutory withholding taxes on income payments to foreigners.<sup>42</sup>

Under current law, the United States imposes a 30 percent withholding tax on payments of dividends, interest (other than portfolio interest, which is exempt) and royalties to foreigners. These rates are generally substantially reduced under tax treaties, sometimes to zero for direct investment interest and royalties and five percent for direct investment dividends. If the United States retained its statutory withholding taxes, treaty partners with significant investment in the United States would stand to lose at the least the substantial benefit of the treaty withholding rate reductions, but they might lose even more. Under the non-discrimination articles of these treaties, a treaty partner is not permitted to impose a greater tax burden on the resident individuals or companies of the other country than it imposes on its own residents. Although these withholding taxes fall only on foreigners, they are not considered to violate the non-discrimination article because they are deemed to be imposed in lieu of the income tax on resident recipients of such payments. Since under the consumption tax plans generally no tax is imposed on resident recipients, the withholding taxes might be viewed to violate the discrimination article.<sup>43</sup> In this case, residents of treaty partners would face no withholding tax at all if the treaty was retained, but a 30 percent tax if it was terminated.

U.S. tax treaty partners might also be deterred from terminating their tax treaties because they might not wish their higher statutory withholding tax rates to apply to U.S. investors. They might rightly be concerned that this would make their country an even less competitive location for U.S. investment, particularly since the United States would no longer provide a foreign tax credit.

## CONCLUSIONS

International considerations can significantly alter the projected effects of replacing our income tax system with a consumption tax. The net effect of moving to a consumption tax on the U.S. capital stock could be positive or negative, because while equity capital would flow into the U.S. business sector, debt capital might flow out of the United States. Even in the event that the U.S. capital stock declined, the overall effect on U.S. national welfare is uncertain. To a large extent, the outflows of capital would be the result of a more efficient allocation of capital across the different sectors of the U.S. economy. In addition, the shift of investment by U.S. companies from abroad back to the United States might increase U.S. welfare, since part of the return from foreign investment is captured by foreign taxes while all of the return from domestic investment remains in U.S. hands. On the other hand, the United States would give up some tax revenue from foreign equity investment in the United States (foreign debt investment in the United States is already largely untaxed). Without knowledge of the magnitude of these various effects, the bottom line is uncertain. Detailed simulation modelling would be required to place bounds on the likely effects.<sup>44</sup> The reactions of other countries may also be significant and should be taken into account.

International considerations also raise new issues in evaluating consumption tax proposals. As we have described, a consumption tax would permit substantial simplification of our complicated international tax rules and would eliminate certain compliance problems in some cases. But there would also be some new administrative and compliance issues. The choice between origin and destination principles for the treatment of exports and imports turns out to have important consequences in this regard, although, contrary to what is often alleged, it does not have consequences for the promotion of exports. Balancing the administrative and compliance problems eliminated against those created would clearly be important in assessing the overall impact of the

consumption tax proposals.

## ENDNOTES

We thank Jay Mackie, Sheena McConnell, Barbara Rollinson, Joel Slemrod, Eric Toder and Joann Weiner for their comments. Any views expressed in this paper are those of the authors alone and should not be construed as reflecting the views or policies of the U.S. Treasury Department.

1. We also refer to the text of H.R. 2060, the bill introduced by Representative Armev in the House of Representatives on July 19, 1995.
2. Merrill, Wertz and Shah (1995) find that tax revenues from non-financial corporations would rise under the USA business tax and the Armev flat tax at plausible tax rates. However, their analysis reveals nothing about the total tax burden on capital income. Their comparison ignores the taxation of capital income at the personal level under the current tax system. They also attribute taxes on wages to the corporate tax burden under the USA business tax but not under the current tax system or the flat tax. Tax burdens clearly do not depend on who sends the checks to the IRS.
3. See Institute for Fiscal Studies (1978).
4. Since interest income and interest expense are ignored, financial intermediaries will have a negative tax base due to their purchase of goods and services from other firms. The implications are discussed later in this paper.
5. Our use of the term "exempt" here describes a situation that is technically described as "zero rating." In the context of a credit-invoice VAT, this means that no tax is paid on the export and credit is allowed for taxes paid by suppliers, so that no tax is paid on the value of the export at any stage in its production.
6. According to the GATT, indirect taxes, but not direct taxes, may be administered according to the destination principle. Although there is no evident economic meaning to the distinction between direct and indirect taxes, this would apparently make it difficult for the flat tax proposals to be administered on the destination principle, presumably because wages are not included in the business tax base.
7. If wages are not in the tax base, a destination-principle tax would be difficult to implement even apart from GATT problems. The rebate would apply only to the capital component of exports and, more important, some capital component would have to be imputed to imports.
8. If foreign income is included in the base of an income VAT, which would be necessary to ensure neutrality in investment location choices from a global perspective, the mechanics of the foreign tax credit limitation may not be straightforward because of the elimination of deductions for interest (and possibly wages.) Exempting foreign income under an income VAT would be the equivalent of providing a front-loaded IRA for foreign investment under the destination principle and a back-loaded IRA for foreign investment under the origin principle.
9. The expected present value of rental payments for the use of property over the life of the property should be equal to the market value of the property. Since under current tax rules proceeds from the sale of property by U.S. residents are generally treated as U.S.-source income, neutrality in tax treatment would require rental receipts to be treated as U.S.-source income as well.



10. The proposals themselves are vague on this point. The USA Tax proposal appears to include royalty receipts in the base, but does not mention royalty payments in the context of deductions nor does it discuss their treatment under the destination principle. The Armey proposal appears to be completely silent on the subject of royalties.

11. This reflects the fact that there are restrictions on the extent to which MNCs can treat contributions of capital to a foreign subsidiary as debt, and the bulk of U.S. direct investment abroad and foreign direct investment in the U.S. is in fact characterized as equity. Although direct investment may also be financed partly with local debt, our subsequent discussion of interest rate effects indicates that taking local debt finance into account would only reinforce the conclusions drawn here.

12. As discussed below, there would be a domestic-foreign price differential under a destination-principle tax. We consider the implications of this price differential below.

13. We ignore the potential reactions of other countries, which are discussed below. Gordon (1992) shows that the foreign tax credit may be optimal from a national standpoint when such reactions are taken into account.

14. These countries include Canada, France, Germany and the Netherlands.

15. As in the case of Japan and the United Kingdom.

16. McLure and Zodrow (1994) present this argument.

17. See, for example, the claims in Alliance USA (1995) regarding the USA tax.

18. See Grossman (1980), Dixit (1985) and Feldstein and Krugman (1990) for recent demonstrations of this point.

19. In reality the fall in the relative foreign price level would occur through some combination of changes in the exchange rate, the foreign price level and the domestic price level.

20. Actual amounts could differ to reflect the transfer of risk; however, accounting for a risk premium would not affect the results of the analysis.

21. We are assuming here that the royalty is deductible against any foreign income tax and that there is no foreign withholding tax on the payment. The presence of a foreign withholding tax would make foreign use of the intangible relatively less attractive.

22. It is possible that a consumption tax would be implemented in which the treatment of royalties was inconsistent with the general destination- or origin-principle treatment of exports and imports of goods and services. If receipts of royalties from abroad were taxed under a generally destination-principle tax, it would be the equivalent of a double tax on the income from the intangible because the imports financed by the income flow from abroad are taxed as well. If royalties from abroad were exempt under a generally origin-principle tax, the income from the intangible would be consumed effectively free of U.S. tax because the imports financed by that income flow are not taxed.

23. Marketing activities can also create intangible assets, but there may be less flexibility in location choice since these activities are frequently market specific.

24. There might, however, be indirect effects. For example, since all investment would be expensed, R&D and advertising would no longer be favored relative to investment in tangible capital.

25. This is likely also to be true for an (R+F)-based tax such as the McLure and Zodrow (1995) proposal. As explained above, the inclusion of new borrowing and deduction for payments of interest and principal is equivalent to the non-deductibility of interest under the R base.

26. See Altshuler and Mintz (1994) and Froot and Hines (1995).

27. An additional complication of uncertain empirical significance is the effect of inflation on interest rates. Inflation should tend to raise real interest rates when interest is deductible since the inflationary premium is deductible. If interest is no longer deductible, this factor disappears and interest rates could fall as a result. There does not, however, seem to be much empirical evidence for increased interest rates because of the interaction of inflation and tax rates.

28. The Gordon and Slemrod (1988) results would suggest that the overall tax on capital does not decline substantially.

29. For evidence on this issue see Feldstein and Horioka (1980), Frankel (1991), French and Poterba (1991) and Baxter and Crucini (1993) among many others.

30. Fed data show that credit market borrowing by corporate and non-corporate non-financial U.S. business was \$3,885 billion at the end of 1994. Bank for International Settlements data give total net international financing in U.S. dollars in international markets at \$5,830 billion at the end of 1994. Banks reported cross-border claims in dollars of \$2,345 billion. And there were Eurobonds and notes in dollars at the end of 1994 equal to \$915 billion. These cross-border holdings in dollars do not include foreign investments in dollar debt not included in bank claims or Eurobonds, e.g., private holdings of U.S. Treasury bonds or corporate bonds.

31. Huizinga's (forthcoming) evidence that banks pass on part of the benefits of home country credits for foreign withholding taxes on interest also suggests substantial mobility of debt capital flows.

32. For example, the prediction of Hall and Rusbushka (1995) that interest rates would fall by a full 2 percentage points seems much too high.

33. This effect might be ameliorated if the non-deductibility of interest payments was converted to a withholding tax on interest and dividends, which might be creditable in the home country or could be relieved for foreigners by law or tax treaty. Alternatively, the adverse effect on debt flows would be avoided if all taxation of capital income was imposed at the personal level.

34. We know of no country that is a significant source of cross-border investment that exempts all foreign income. Most "exemption" countries exempt only foreign income from active businesses and not income from passive foreign investments. Some countries also exempt foreign income only from selected countries, e.g., countries with which they have a tax treaty or that are not considered tax havens. The associated rules create considerable complexity.

35. These are the Passive Foreign Investment Company rules and parts of the Subpart F rules.

36. As noted previously, (R+F)-based consumption taxes do provide for interest deductibility, but since new borrowing is included in the tax base and repayments of debt deducted, the treatment of debt is equivalent in present value terms to interest non-deductibility.

37. There might be a need to adapt some of the provisions in the current tax code that serve as backstops for the transfer pricing rules, such as the foreign base company sales income provision of the subpart F rules.

38. Under the flat tax the financial services problem would be even narrower, since the wage component of the value of those services would be taxed.

39. See Sarkar and Zodrow (1993) for a review of some of the major transition problems.

40. The USA tax proposal contains transition rules to ameliorate this impact, but they add considerable complexity. In addition, estimates of large increases in savings from moving to a consumption tax are generally predicated on the lack of any transition rules. See, for example, Auerbach and Kotlikoff (1987).

41. This transition impact could be moderated to the extent that the elimination of income taxes increased the after-tax yield to wealth holders. In this case, the initial transition losses in wealth are offset to a greater extent the longer the wealth holder can take advantage of the higher after-tax yields, i.e., the longer the period before the wealth is consumed. However, this moderating influence may be diminished by international capital flows, since any rise in domestic after-tax yields would be moderated by an inflow of foreign capital.

42. It appears to us that the USA tax plan intends to retain these withholding taxes, but we could not determine whether that was the case under the Armey flat tax.

43. The USA individual tax might be an exception, since receipts of dividends and interest are included in the tax base.

44. Goulder, Shoven and Whalley (1983) concluded that a consumption tax that increases U.S. welfare in a closed economy would decrease U.S. welfare when international capital mobility is taken into account. Their explanation is that the consumption tax leads to a large capital outflow and a loss to the United States of business level taxes that would be collected by foreign countries. But, in contrast to the proposals analyzed here, they assume a savings deduction at the personal level combined with a corporate income tax that provides a foreign tax credit. As we have seen, a business level consumption tax is likely to result in less equity investment abroad and less foreign tax being paid.

## REFERENCES

Alliance USA. "Description and Explanation of the Unlimited Savings Allowance Income Tax System." *Tax Notes* 66, No. 11 (March 10, 1995): 1483-1575.

Altshuler, Rosanne and Jack Mintz. "U.S. Interest Allocation Rules: Effects and Policy." NBER Working Paper No. 4712. Cambridge, MA: National Bureau of Economic Research, 1994.

Auerbach, Alan J. and Laurence J. Kotlikoff. *Dynamic Fiscal Policy*. Cambridge, U.K.: Cambridge University Press, 1987.

Baxter, Marianne and Mario Crucini. "Explaining Saving-Investment Correlations." *American Economic Review* 83, No. 3 (June, 1993): 416-36.

Bradford, David F. *Untangling the Income Tax*. Cambridge, MA: Harvard University Press, 1986.

Dixit, Avinash. "Tax Policy in Open Economies," in *Handbook of Public Economics*, edited by A. Auerbach and M. Feldstein. Amsterdam: North-Holland, 1985.

Feldstein, Martin S. and Charles Y. Horioka. "Domestic Savings and International Capital Flows." *Economic Journal* 90 (June, 1980): 314-29.

Feldstein, Martin and Paul Krugman. "International Trade Effects of Value-Added Taxation." in *Taxation in the Global Economy*, edited by A. Razin and J. Slemrod. Chicago: University of Chicago

Press, 1990.

Frankel, Jeffrey A. "Quantifying International Capital Mobility in the 1980s." in *National Saving and Economic Performance*, edited by D. Bernheim and J. Shoven. Chicago: University of Chicago Press, 1991.

French, Kenneth R. and James M. Poterba. "Investor Diversification and International Equity Markets." NBER Working Paper No. 3609. Cambridge, MA: National Bureau of Economic Research. 1991.

Froot, Kenneth A. and James R. Hines, Jr. "Interest Allocation Rules, Financing Patterns, and the Operations of U.S. Multinationals." in *The Effects of Taxation on Multinational Corporations*, edited by M. Feldstein, J. R. Hines, Jr. and R. G. Hubbard. Chicago: University of Chicago Press, 1995.

Gordon, Roger H. "Can Capital Income Taxes Survive in Open Economies?" *The Journal of Finance* 47, No. 3 (July, 1992): 1159-80.

Gordon, Roger H. and Joel Slemrod. "Do We Collect Any Revenue from Taxing Capital Income?" in *Tax Policy and the Economy*, Vol. 2, edited by L. Summers. Cambridge, MA: MIT Press, 1988.

Goulder, Lawrence H., John B. Shoven and John Whalley. "Domestic Tax Policy and the Foreign Sector: The Importance of Alternative Foreign Sector Formulations to Results from a General Equilibrium Tax Analysis Model" in *Behavioral Simulation Methods in Tax Policy Analysis*, edited by M. Feldstein, Chicago: University of Chicago Press, 1983.

Grossman, Gene M. "Border Tax Adjustments: Do They Distort Trade?" *Journal of International Economics* 10 (1980): 117-28.

Grubert, Harry and John Mutti. "International Aspects of Corporate Tax Integration: The Contrasting Role of Debt and Equity Flows." *National Tax Journal* 47, No. 1 (March, 1994): 111-33.

Grubert, Harry and John Mutti. "Taxing Multinationals in a World with Portfolio Flows and R&D: Is Capital Export Neutrality Obsolete?" *International Tax and Public Finance* (forthcoming).

Hall, Robert E. and Alvin Rabushka. *Low Tax, Simple Tax, Flat Tax*. New York: McGraw-Hill, 1983.

Hall, Robert E. and Alvin Rabushka. *The Flat Tax*. Stanford: Hoover Institution Press, 1st edition, 1985, 2nd edition, 1995.

Hartman, David. "Tax Policy and Foreign Direct Investment." *Journal of Public Economics* 26 (1985): 107-21.

Huizinga, Harry. "The Incidence of Interest Withholding Taxes: Evidence from the LDC Loan Market." *Journal of Public Economics* (forthcoming).

Institute for Fiscal Studies. *The Structure and Reform of Direct Taxation* (The Meade Committee Report). London: Allen and Unwin, 1978.

McLure, Charles E. and George R. Zodrow. "Creditability of the Cash Flow Tax." Unpublished submission to the Treasury Department, October, 1994.

McLure, Charles E. and George R. Zodrow. "A Hybrid Approach to the Direct Taxation of Consumption." Proceedings of a Conference Sponsored by the Hoover Institution, Washington, D.C., May 11, 1995.

Merrill, Peter, Ken Wertz and Shvetank Shah. "Corporate Tax Liability Under the USA and Flat Taxes." *Tax Notes* 68, No. 6 (August 7, 1995): 741-45.

Mintz, Jack M. and Jesus Seade. "Cash Flow or Income? The Choice of Base for Company Taxation." Policy Planning and Research Working Paper No. 177, Washington, DC: The World Bank, April, 1989.

Sarkar, Shounak and George R. Zodrow. "Transitional Issues in Moving to a Direct Consumption Tax." *National Tax Journal* 46, No. 3 (September, 1993): 359-76.

**TABLE 1**  
**INVESTMENT LOCATION CHOICE UNDER INCOME AND CONSUMPTION TAXES**

	Domestic Income Tax			Domestic Consumption Tax	
	Domestic investment (i)	Foreign investment w/foreign tax credit (ii)	Foreign investment w/exemption (iii)	Domestic investment (iv)	Foreign investment (v)
(1) Cost of machine	100	100	100	100	100
(2) Tax deduction for machine	0	0	0	25	0
(3) Net cost of machine (1)-(2)	100	100	100	75	100
(4) Net return before tax	10	10	10	10	10
(5) Foreign income tax	-	1	1	-	1
(6) Net return after foreign tax (4)-(5)	10	9	9	10	9
(7) Domestic tax liability	2.5	2.5	0	2.5	0
(8) Foreign tax credit	-	1	-	-	-
(9) Total domestic taxes paid (7)-(8)	2.5	1.5	0	2.5	0
(10) Total taxes paid (5)+(9)	2.5	2.5	1	2.5	1
(11) Net return after tax (4)-(10)	7.5	7.5	9	7.5	9
(12) Rate of return (11)÷(3)	7.5%	7.5%	9%	10%	9%
<p>Assumptions: Domestic income or consumption tax rate = 25 percent.  Foreign income tax rate = 10 percent.  Pre-tax rate of return on investment in each location = 10 percent.  No depreciation.  Consumption tax is R base and origin principle.</p>					



**TABLE 2**  
**LOCATION CHOICE FOR TANGIBLE INVESTMENT UNDER ORIGIN- AND DESTINATION-  
PRINCIPLE CONSUMPTION TAXES**

	Destination-principle tax		Origin-principle tax	
	Domestic investment (i)	Foreign investment (ii)	Domestic investment (iii)	Foreign investment (iv)
(1) Foreign price/domestic price	0.75	0.75	1	1
(2) Cost of machine	100	75	100	100
(3) Tax deduction for machine	25	0	25	0
(4) Net cost of machine (2)-(3)	75	75	75	100
(5) Net return before tax	10	7.5	10	10
(6) Foreign income tax	-	0.75	-	1
(7) Domestic tax	2.5	0	2.5	0
(8) Total taxes paid (6)+(7)	2.5	0.75	2.5	1
(9) Net return after tax (5)-(8)	7.5	6.75	7.5	9
(10) Rate of return (9)÷(4)	10%	9%	10%	9%
<p>Assumptions: Domestic consumption tax rate = 25 percent.  Foreign income tax rate = 10 percent.  Pre-tax rate of return on investment in each location = 10 percent.  No depreciation.</p>				

**TABLE 3**  
**LOCATION CHOICE FOR INTANGIBLE ASSETS**  
**UNDER ORIGIN- AND DESTINATION-PRINCIPLE CONSUMPTION TAXES**

	Foreign use		
	Domestic use (i)	Destination- principle tax (ii)	Origin- principle tax (iii)
(1) Foreign price/domestic price	-	0.75	1
(2) Value added by intangible before tax	100	75	100
(3) Royalty required	-	75	100
(4) Domestic tax	25	0	25
(5) Return after tax, (2) or (3) - (4)	75	75	75
(6) Return after (foreign) tax if no royalty paid	-	67.5	90
Assumptions: Domestic consumption tax rate = 25 percent. Foreign tax rate = 10 percent. Intangible asset creates same real output in each location.			