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**Working Paper**

## Corporate taxes in the world economy: reforming the taxation of cross-border income

Working Paper, No. 2006-26

**Provided in Cooperation with:**

Department of Economics, Rutgers University

*Suggested Citation:* Grubert, Harry; Altshuler, Rosanne (2006) : Corporate taxes in the world economy: reforming the taxation of cross-border income, Working Paper, No. 2006-26, Rutgers University, Department of Economics, New Brunswick, NJ

This Version is available at:

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**CORPORATE TAXES IN THE WORLD ECONOMY:  
REFORMING THE TAXATION OF CROSS-BORDER INCOME**

by

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This draft: December 12, 2006

This paper was prepared for presentation at the James A. Baker III Institute for Public Policy Conference, “Is It Time for Fundamental Tax Reform?: The Known, Unknown, and Unknowable,” held in Houston, TX on April 27-28, 2006. We thank Gordon Wilson for providing very useful help with the Treasury tax files. We thank Charles Ballard, John Diamond, Geraldine Gerardi, Roger Gordon, Arnold Harberger, Edward Kleinbard, Charles Rossotti, and George Yin for helpful comments on a previous draft. Nothing in this paper should be construed as reflecting the views and policy of the U.S. Treasury Department.

# **Corporate Taxes in the World Economy: Reforming the Taxation of Cross-Border Income**

## **ABSTRACT**

Proposals for the reform of the taxation of cross-border income are evaluated within the general context of the corporate tax in an open economy. We focus on the various behavioral decisions that can be affected such as the location of income and its repatriation. The two income tax proposals considered are: (1) dividend exemption and (2) burden neutral worldwide taxation in which all foreign subsidiary income is included currently in the U.S. worldwide tax base, and at the same time the corporate tax rate is lowered and overhead allocations to foreign income are eliminated so as to keep the overall U.S. tax burden on foreign income the same. We also consider the attractiveness of destination-based and origin-based consumption taxes. Our evaluation of reform options makes use of the best available information. We also present new information on the burden of the current system. However, there are many important unknown behavioral parameters required to judge international tax systems and this missing information, some of which may ultimately be unknowable, makes it difficult to make definitive recommendations.

The burden neutral worldwide option seems to offer greater efficiency gains among the two income tax options, particularly because of reduced incentives for income shifting which wastes resources and distorts effective tax rates on investment. To be sure, the burden neutral worldwide option would increase effective tax rates on investment in low-tax countries while not increasing the average U.S. tax rate on foreign source income. The option requires a substantial reduction in the U.S. corporate tax rate. We suggest that increased capital mobility makes changing the mix of corporate and personal level taxation of business income appropriate even apart from the special issues of cross-border taxation such as repatriation taxes and income shifting opportunities that are the main subject of the paper.

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Globalization and the decline in corporate tax rates around the world have focused attention on the corporate tax in an international context. The current U.S. system for taxing cross-border corporate income is very complex, induces inefficient behavioral responses, and leaves both companies and policy analysts dissatisfied. A number of proposals have been put forward to address this situation. For example, the President's Advisory Panel on Federal Tax Reform recommended two approaches for the taxation of cross-border income: adoption of a territorial tax system within the context of a simplified income tax and a destination-based cash-flow tax within the context of a consumption-tax prototype.<sup>1</sup> It is important to recognize that these proposals for reform of the current system and others that have been debated all have differing strengths and weaknesses. The goal of this paper is to evaluate proposals for reform of the taxation of cross-border income within the constraints of current knowledge.

While we focus on the taxation of cross-border income, particularly direct investment, analyzing the cross-border issue cannot be isolated from the rest of the tax system. As we note, increased capital mobility justifies a change in the mix of corporate and personal taxation within a given revenue constraint. Lowering the corporate statutory rate within general base broadening and a shift of more of the taxation of capital to the personal level is consistent with an attractive option described below for the taxation of cross-border corporate income. International considerations also tilt the choice between lowering the corporate rate versus expensing toward a simple reduction in the corporate rate. A lower corporate rate reduces the incentives for shifting income out of the United States, which both loses revenue and magnifies the attractiveness of investing in low-tax locations.

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<sup>1</sup> See President's Advisory Panel on Federal Tax Reform (2005) for details.

One of the difficulties in evaluating reform proposals is that the models and estimates of behavioral elasticities required for judging an international tax system definitively are beyond the scope of current knowledge and we cannot assume that they will ultimately be knowable. There is an extensive literature on the alternative principles that should guide the process, including Capital Export Neutrality (CEN), Capital Import Neutrality (CIN), and more recently, Capital Ownership Neutrality (CON). However, none of these benchmarks is satisfactory because the argument supporting them usually takes place within very simple models. The necessity to examine all the important responses to a change in the tax on international corporate income such as the choice of where to exploit intangible assets like patents, the choice of where to locate income and expenses for tax purposes, and the choice between alternative types of financing in different locations, among other decision margins, makes it clear that no one-dimensional criterion is useful and that a complete evaluation of any reform proposal is probably not feasible.

Nevertheless, it is clear that progress can be made along a number of decision margins. For example, the resources companies devote to avoiding the tax on repatriating income is a waste and is rendered unnecessary under several reform proposals. Furthermore, while it is difficult to conclude where in the range between pure residence taxation under CEN and pure source taxation under CIN is optimal, it is probably true that tax burdens far out of the range, such as large (in absolute value) negative tax rates on the one hand and double taxation on the other, do not represent good tax policy. The current system creates incentives for behavior that are inefficient under any criterion and these distortions are the main subject of this paper.

The alternative international tax reforms we consider within an income tax rubric are dividend exemption, similar to the proposal made by the Tax Reform Panel, and a constant burden worldwide option in which there is no deferral privilege for active earnings retained abroad, no required allocations of expenses to foreign income, and a reduction in the U.S. tax rate on foreign income so as to leave the overall residual U.S. tax on foreign business income unchanged. This latter option is a variant of the international component of the system proposed

by Edward Kleinbard (see Kleinbard 2005 and 2006). On the consumption tax side, we review the relative merits of destination- and origin-based systems. As a sidelight, we examine whether a destination-based income tax, which some analysts have proposed, is a policy that should seriously be considered. Finally, while we concentrate almost exclusively on the taxation of foreign source income, we do comment on how international considerations might alter the analysis of the reform of the corporate tax on domestic income.

While international taxation may seem complicated, there are in fact only a small number of moving parts. One question is whether a system imposes a U.S. tax on repatriated income. Dividend exemption, for example, would eliminate any repatriation tax on active income earned abroad. Another question is whether the system provides an incentive for manipulating transfer prices. The worldwide system does not because all foreign income is taxed currently. The only qualification is the possibility of companies having excess foreign tax credits which would continue to offer them incentives for income shifting. For this reason, the frequency of excess credits will be an important consideration in evaluating the worldwide proposal. Furthermore, this question of excess credits brings us to another important issue, which is the taxation of royalties and other intangible income. Under current law, most royalties, although deductible abroad, are exempt from U.S. tax because of available excess foreign tax credits. But royalties are fully taxed under dividend exemption, for example.

Burden neutral worldwide taxation seems to dominate dividend exemption because it eliminates many more distortions in addition to repatriation behavior. These include transfer price planning, the shifting of the location of debt and the need to make expense allocations. The option would increase the effective tax rates on investment in low-tax countries while not increasing the average U.S. tax rate on foreign source income. However, within the state of current knowledge, we cannot be certain that this improves the worldwide allocation of capital.

Finally, another advantage of the burden neutral option is that it has fewer components that are susceptible to pressure during the political process. Under dividend exemption, the full

taxation of royalties and the required allocation of expenses to exempt income are critical components. There would be predictable attempts to exempt royalties in addition to dividends, or tax them at a much lower rate, and to water down the expense allocation requirement. This would completely change the character of the option. In contrast, the burden neutral proposal has just one critical parameter, the corporate tax rate, and any attempt to lower it would be constrained by its necessary application to domestic income as well. Further, any attempt to raise (or lower) the corporate rate would generate a national policy debate.

An important remaining issue is the basic tax rate on all corporate income and coordinating the foreign and domestic components. Estimates from the Treasury tax files suggest that the burden neutral option requires a tax rate on foreign income of about 28 percent. But revenue neutral base broadening on the domestic side would only bring the corporate rate down to about 32 percent.<sup>2</sup> In this paper we consider the income tax options and consumption taxes separately. There could of course be a combination of the two, for example, a moderate VAT that would permit lower corporate and personal rates.

The obvious answer to the conundrum of coordinating foreign and domestic components within the income tax rubric is to shift more of the tax on capital to the personal level. In an open economy, the corporate and personal tax systems cannot be considered separately. Increasing the tax on capital at the personal level while reducing the tax on broad-based corporate income to 28 percent would greatly enhance the competitiveness of the domestic operations of U.S. corporations and also keep the average tax burden on their foreign operations unchanged. A lower U.S. corporate tax burden would increase the attractiveness of investing in the United States by foreign companies. We do not have a full answer to how to make this shift. (Repealing the special lower tax rate on dividends enacted with the Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA), for example, only buys about one-third to one-half of the

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<sup>2</sup> The estimate assumes the repeal of the nine percent deduction for domestic 'production' income introduced in 2004.

reduction from 32 percent to 28 percent.) But the benefits of such a switch would seem to make the enquiry worthwhile.

Lowering the corporate rate on U.S. domestic income would tend to reduce a behavioral distortion we do not emphasize in the body of the paper, the ultimate U.S. saver's choice between investing in U.S. and foreign companies. Corporate tax rates have been coming down around the world. A recent study by the Institute for Fiscal Studies indicates the average G7 tax rate went down by eight percentage points from 1996 to 2005. The European Union's core 15 members' average tax rate is now 30 percent.<sup>3</sup> Furthermore, this decline is reflected in the tax burden of U.S. manufacturing subsidiaries abroad. The 2002 Treasury tax files indicate that the average statutory tax rate abroad that they operate in is, weighted by their income, about 29 percent. Their effective tax rate on net income is only about 16 percent.

U.S. shareholders have the opportunity for enjoying these lower foreign rates by investing directly in foreign companies. In this paper, we do not explore ambitious integration schemes such as full partnership taxation with the current inclusion of all corporate income at the individual shareholder level. This would achieve the goals of the corporate level schemes for the taxation of cross-border income that we do study. But, for one thing this would require the look through to the ultimate earnings of the foreign corporations owned by U.S. shareholders, which would be very impracticable. It also raises the question of how to tax foreign owners of U.S. corporate income. Nevertheless, it appears better to move toward integration by lowering taxes at the corporate level because that brings the cross-border benefits.

Although the burden neutral worldwide option holds the overall U.S. tax burden on foreign income equal to the current burden, we recognize that U.S. companies that are mainly in low-tax locations may find that the resulting 28 percent rate puts them at a competitive disadvantage. Lowering the corporate rate even further may offset any impact on

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<sup>3</sup> The average tax rates include state and local taxes which are very important in Germany and Japan among other countries. The Survey of Current Business indicates that U.S. state corporate taxes were 3.2 percent of corporate income in 2004.

competitiveness but diminishes the benefits of the option relative to the current system by increasing the frequency and size of excess credits. An important unknown in an evaluation of the tradeoff between a lower U.S. corporate tax rate and the occurrence of excess credits is the reaction of foreign governments. If foreign governments were to follow suit and lower rates, fewer companies would find themselves with excess foreign tax credits.

The plan of the remainder of the paper is as follows. We start with a brief description of the current U.S. system along with data on the tax actually borne by different types of cross-border income such as dividends and royalties. This is followed by a short presentation of the reform options. The next section discusses important shortcomings of the standards that have been proposed for evaluating the efficiency of international tax systems. We then spell out the various behavioral margins that the international tax system acts upon and review the empirical evidence on how company behavior is affected along these decision margins. The penultimate section provides an evaluation of the alternative reform proposals. The final section offers some concluding thoughts on tax reform in an open economy.

## **I. The current U.S. system for taxing international income: What income does it tax?**

The United States imposes a tax on all repatriated foreign income, including not only dividends but also royalties, interest and other foreign payments. Taxpayers can also identify certain income as ‘foreign source’ even though it may have no connection with any U.S. business activity abroad. Income from exports is an example. Under the current “sales source” rules, 50 percent of export sales income can be classified as foreign source.

Under the current system, certain types of foreign income do not qualify for deferral and are instead taxed upon accrual under what are generally referred to as Controlled Foreign Corporation (CFC) rules. These rules are part of the Subpart F provisions of the tax code. In general, these “anti-tax avoidance” provisions deny deferred taxation on foreign subsidiary income that is considered abusive or ‘tainted’. Tainted income includes passive portfolio income

and the payment of interest, dividends and royalties from one CFC to a CFC in another jurisdiction.

Taxpayers receive a foreign tax credit against tentative U.S. tax for foreign taxes paid on foreign source income, including a credit for the underlying foreign corporate tax linked to a dividend. However, this credit is limited to what the U.S. tax would have been had the income been earned in the United States. The limitation on the credit prevents countries that are host to large amounts of U.S. foreign activity from imposing exorbitant tax rates on the income generated from U.S. companies and diverting revenues from the U.S. Treasury. In fact, the justification for the credit limitation has to do with the behavior of governments and not the behavior or burden of U.S. taxpayers.

Two steps are important in the foreign tax credit limitation calculation. First, the foreign income is separated into baskets to restrict cross-crediting, i.e., credits flowing over from highly taxed income to shield income that has been lightly taxed. Before the 2004 American Jobs Creation Act (AJCA), the three significant income baskets were general nonfinancial active income, financial services income, and passive income. The AJCA effectively collapsed the baskets into two, active income and passive income. Within any basket, excess credits generated by one type of income (e.g., dividends) can flow over to other income in the basket (e.g., royalties) and shield that income from any residual U.S. tax.

In the second step of the foreign tax credit limitation calculation, parent overhead expenses such as interest are allocated to each basket to calculate the net foreign income on which the credit can be claimed. This only affects companies if they cannot credit all the foreign taxes they have paid. If a company has excess credits, allocation of expenses to foreign income increases U.S. tax by reducing allowable credits. If the company does not have excess credits, or is currently not repatriating income, the allocations have no effect on current U.S. tax liability. Allocations of overhead expenses can be very large and play an important role in some of the reform options.

To illustrate these provisions, consider two companies A and B, each with a single investment abroad. Company A invests in a low-tax country with a statutory and effective tax rate of 10 percent while B invests in a country with a 40 percent tax rate. The U.S. statutory rate is 35 percent. Company A and B each earn 100 abroad (under both US and foreign income concepts) and repatriate the entire amount. Assume first that there are no required allocations of parent overhead expense for the purpose of determining the foreign tax credit. If A repatriates all its income it has a tentative US tax of 35 but it receives a credit of 10 for foreign taxes paid, leaving a residual US tax of 25. Company B has paid 40 in US tax but only receives a credit of 35 on its 100 of (grossed-up) foreign income. It has excess credits of 5.

Now assume that each has to allocate 10 of parent interest to foreign income when calculating its foreign tax credit limitation. Therefore, while each still has the same amount of gross foreign income of 100, their foreign tax credit limitation is now 35 percent of the net foreign income of 90, or 31.5. This has no effect on company A because it has only paid foreign tax of 10. But B's US tax liability goes up by 3.5. It reports foreign income of 100 on its tax return but it only gets a credit of 31.5.

Finally, what if 10 of the 100 gross foreign income is in the form not of a dividend but a royalty deductible abroad? Nothing changes for A because its foreign tax drops to 9 but this is just offset by the higher residual US tax after the credit of 9. But company B is better off. B saves 4 of foreign tax because it pays 36 on taxable income in the foreign country of 90. The lower foreign tax of has no effect on US tax because it can still only credit 31.5. So it has a net gain of 4 of reduced worldwide tax liability. In effect, the royalty is taxed nowhere because it is deductible abroad and shielded by available excess credits at home.

In 2000, tabulations of the Treasury tax files indicate that the U.S. residual tax on corporate 'foreign' income was \$12.7 billion. Admittedly, this figure does not adequately convey the 'true' effective tax burden on foreign income, in part because of the way 'foreign income' is defined in U.S. law. Some income produced in the United States can end up being classified as foreign and some produced abroad can be classified as domestic. Both positive and negative adjustments should in

principle be made. The \$12.7 billion is an overstatement of the true US tax burden on foreign income to the extent that income is shifted out of the United States and retained in a low-tax jurisdiction abroad. On the other hand, the \$12.7 billion may be an understatement because in 2000 the interest allocations mandated under the U.S. rules were overly strict, effectively classifying some foreign income as domestic and subject to full U.S. tax. The added US tax on income misclassified as domestic should be added to the burden on foreign income.<sup>4</sup> The \$12.7 billion measure also does not include ‘implicit’ taxes, the costs companies bear to avoid the actual tax. An important example is the cost of avoiding the repatriation tax on dividends through various planning strategies. Each of these ‘unseen’ positive and negative components (income shifting, allocations, tax planning costs) is an important consideration in comparing the reform options.

It is useful, nevertheless, to look inside the \$12.7 billion of revenue to see the components of ‘foreign’ income and how they are taxed. Understanding the current taxation of the different components of foreign income helps focus attention on the most important behavioral changes that result from the current system. One thing that is clear is that a relatively small amount of revenue is accounted for by dividends, at most 15 percent in 2000. Less than half of the tax revenues from foreign income in 2000 --- \$5.6 billion --- was derived from the general, active nonfinancial foreign tax credit basket, and only about \$1.3 billion of that was from dividend repatriations. The remaining \$4.3 billion was from royalties, interest received from subsidiaries and export income. \$4.6 billion of U.S. tax came from the financial services basket, and of that only about \$0.3 billion was from dividends. The remainder was split about evenly between tax on the income of unincorporated foreign branches of U.S. banks and interest received directly by U.S. banks on foreign loans. Finally, \$2.1 billion of revenue was obtained from the passive basket (and the remaining .4 billion from the other baskets). Most of this \$2.1 billion is financial income earned by U.S. controlled companies abroad that is taxed currently to the parent under the U.S. anti-abuse rules.

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<sup>4</sup> As indicated in the example above, this is only relevant for companies with excess credits.

Export income and, in particular, royalties in the active basket require further comment. A significant amount of each are now shielded from U.S. tax because of excess credits originating from highly taxed dividends. In the case of royalties, this creates a tax incentive to exploit intellectual property like a patent for a new computer chip abroad rather than in the United States since the returns will escape U.S. taxation. Similarly, the shielding of export income is an export incentive for companies with excess foreign tax credits. As we will see, many of the reform proposals affect both of these decision margins.

Tax provisions affecting royalties and the income from intangible assets in general are of particular importance because they have become a significant source of foreign direct investment income. The exploitation of parent 'know-how' is a very important motivation for foreign investment. Data published by the Department of Commerce indicate that royalties and license fees received by U.S. companies in 2004 amounted to \$52.6 billion (Survey of Current Business, 2005). Total direct investment income not including royalty income but including deferred income amounted to \$233.6 billion in 2004. Treasury tabulations for 2000 indicate that royalties received by U.S. multinational companies (MNCs) amounted to \$45.1 billion or more than 35 percent of total net repatriated nonfinancial foreign income, which is dominated by manufacturing. It is also of interest that these royalty payments only yielded additional taxes of \$5.8 billion. Almost two-thirds were shielded by excess credits arising from dividends. Moreover, recent work suggests that royalties represent less than half of the contribution that parent R&D makes to subsidiary income (see Mutti and Grubert 2006). The problems of estimating the 'correct' arms' length royalties and the prices of intangible intensive goods and services create opportunities for shifting income to low-tax locations. Accordingly, the tax system can influence the choice between exploiting intellectual property at home or abroad and also the choice of which country is the best foreign location.

## **II. The alternative reform options**

This section briefly outlines the reform options we consider. The goal is to highlight how the simple elements of international taxation (for example, whether and when there is a tax on active foreign income, whether expense allocation rules are imposed, and the treatment of royalties) that affect behavioral margins change across the options. Our analysis of the reform options follows our discussion of what is known about behavioral responses.

### **A. *Dividend Exemption***

Reforms suggested recently by the President's Advisory Panel on Federal Tax Reform (2005) and by the staff of the Joint Committee on Taxation (2005) include dividend exemption proposals. These recommendations have generated increased interest in understanding the consequences of adopting a dividend exemption system for the United States. The basic features we consider are based on the dividend exemption system described in Grubert and Mutti (2001) and are similar to both recent proposals.

The starting point for the reform is the elimination of the repatriation tax applied to dividend income from foreign affiliates. This income would be exempt from U.S. taxation and the foreign tax credits associated with it would no longer play any role in the tax system. Income that is deductible abroad would be taxed in the U.S. so that all income is taxed once. Thus, royalties and interest paid to the U.S. parent, which are deductible expenses abroad, would be taxed at the U.S. tax rate. As should be clear from the previous section, these are significant changes relative to the current system. Passive income would continue to be taxed on a current basis and the current anti-tax avoidance provisions contained in Subpart F of the tax code would remain in place.

Any dividend exemption system adopted in the United States would be expected to be paired with rules that allocate parent overhead expenses, such as interest, to exempt income. (This would be an extension of the U.S. tax principle that expenses related to exempt income be

allocated to exempt income). Expense allocations prevent companies from generating negative effective tax rates abroad by earning exempt income in a low-tax country while taking deductions in the United States. Under the dividend exemption scheme we consider, the amount of the parent company interest expense disallowed would be based on the relative size of gross domestic and foreign assets as under AJCA. This allocation scheme is often described as providing “worldwide fungibility” to companies. Parent R&D expenses would not be allocated and would thus be fully deductible at the U.S. tax rate since royalties are fully taxed at the U.S. tax rate.<sup>5</sup> As under present law, other overhead expenses would also be subject to allocation rules.

Income from export sales would not be classified as active foreign income and would be fully taxable. Further, since excess credits no longer play any role in the system, the current “sales source” rules under which 50 percent of export income can be classified as foreign source is no longer relevant. As a result, the export incentive provided to companies with excess credits under current law would be eliminated.

Based on the Grubert (2001) analysis of tax revenues under this dividend exemption scheme as well as the revenue estimate attached to the Joint Committee on Taxation option<sup>6</sup>, we expect that this reform would generate a small revenue gain at the current 35 percent corporate statutory tax rate.<sup>7</sup> While we make the assumption that this option imposes about the same average burden on foreign source income as current law for our analysis, we recognize that our estimate is not precise since it does not take into account the full range of possible behavioral responses.

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<sup>5</sup> No dividend exemption scheme in force in any other country that we are aware of imposes these allocation rules.

<sup>6</sup> The dividend exemption option put forward by the Joint Committee on Taxation is estimated to raise \$54.8 billion over fiscal years 2005-2014 (Joint Committee on Taxation, 2005).

<sup>7</sup> Grubert (2001) points out that the revenue estimates depend critically on the specific features of the plan adopted. Potential behavioral responses by U.S. companies can have a significant impact on revenues.

***B. Constant burden worldwide taxation***

The alternative reform we consider within the context of an income tax represents the other end of the spectrum with regard to active income earned abroad. Under constant burden worldwide taxation, deferral is eliminated. All foreign income is part of the worldwide base and is taxed immediately. Removing deferral from the code has the potential to remove all tax planning incentives. Transfer prices would, potentially, be irrelevant at least to the extent that companies do not have excess foreign tax credits.<sup>8</sup>

Since all foreign income is in the worldwide taxable base, overhead expenses that support foreign investment should be deductible from the base. Following this logic, we pair this provision with the elimination of expense allocation rules. While this may violate the rules of correct income measurement, it has several major advantages as explained below. It decreases the frequency of excess credits and reduces the extent to which the corporate tax rate has to fall to keep average tax burdens on foreign source income unchanged. In addition, removing companies from the burden of having to allocate expenses would be a major simplification to current law.

The foreign tax credit would be maintained as would the foreign tax credit limitation.<sup>9</sup> As mentioned above, without a foreign tax credit limitation foreign governments would have an incentive to divert revenues from the U.S. Treasury by raising rates on U.S. investment.

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<sup>8</sup> Transfer pricing rules would still be necessary for inbound companies.

<sup>9</sup> One possible variation on this burden neutral scheme is to introduce a per country system for foreign tax credit limitations. This becomes more practical if deferral is eliminated because the problem of tracing intercompany payments up the tiers of subsidiaries disappears. Intercompany payments can be removed from the receiving subsidiaries' income and only the company's own earnings from business transactions count. But this system which would add complications does not seem to have any obvious advantages compared to an overall system of credits. It is true that if the parent would be in excess credit in an overall system, the per country limitation would eliminate the advantages of shifting income to a low-tax location. But the incentive to locate intangibles in a high-tax location would remain because the deductible royalties would drive down the country's average tax rate. (Presumably the royalties would be put in the country's basket. One could contemplate a per country, per item system but that would make it even more complicated.) Furthermore, if the parent would be in excess limit in an overall system, the per country system could create excess credits where they did not exist before, with their attendant shifting incentives. Finally, instituting a per country system increases the tax on the companies, so the burden neutral tax rate would have to be lower.

Importantly, firms with excess credits under the new regime would face tax planning incentives. As a result, understanding the frequency of excess credit positions is of critical importance.

This reform of the U.S. tax system would reduce the competitiveness of U.S. companies abroad if it were not paired with a reduction in rates. For this reason, we pair worldwide taxation with a reduction in the tax rate on foreign source income that holds the current U.S. tax burden on this income constant. The procedure used to estimate the rate is described in our analysis of the reform options. The estimate does not take into account any extra revenue that would end up in the worldwide tax base due to the reduction in tax planning costs associated with this reform. As discussed further in section V, the burden neutral rate turns out to be approximately 28 percent. This revenue neutral rate is based on work with the Treasury tax files but should not be interpreted as an official Treasury estimate.

Our calculations based on the 2002 tax files suggests that companies with about 30 percent of total foreign source income would end up in excess credit at the burden neutral rate of 28 percent. The companies in excess credit are dominated by those in petroleum which are virtually all in excess credit as under current law. In contrast, only about 18 percent of the foreign income of manufacturing parents would be in excess credit. And we might expect the frequency of excess credits to fall as a result of the decline in foreign tax rates since 2002.

### ***C. Destination-based and origin-based consumption taxes***

The tax reform debate often focuses on proposals to replace the current income tax system with a consumption tax. While there are a host of issues to consider, many of which are addressed in other papers presented at this conference, our focus is on the international implications of a switch from income to consumption taxation.<sup>10</sup> For simplicity, we consider a consumption tax in the form of a VAT and ignore issues such as the taxation of financial institutions.

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<sup>10</sup> See Auerbach (2006) and Shaviro (2006).

Consumption taxes can be imposed on either a destination basis or an origin basis. Under a destination base, sales to customers abroad (exports) are excluded while purchases from abroad (imports) are included. The tax base is the value added of domestic consumption wherever it is produced. An origin base, in contrast, would not impose a tax on goods produced outside of the United States. The tax base under this variant is domestic consumption plus net exports. As we will see, the different bases will have important implications for the behavioral margins.

The tax treatment of royalties from abroad, which can be thought of as representing payments on the export of an intangible asset, depends on the base. Under a destination base, royalties received from abroad would be exempt (and royalties paid to foreigners would not be deductible). In contrast, all royalties would be included in the tax base (and all royalty payments would be deductible), if the consumption tax were implemented using an origin base. Expense allocations do not arise under a consumption tax.

### **III. An efficiency criterion for foreign investment?**

As noted in the introduction, a definitive analysis of the relative merits of alternative reforms is difficult because it requires more complete models than have been presented, and furthermore relevant parameter estimates for a more fully articulated model are unlikely to be available anytime soon. Several standards have been proposed for optimal worldwide efficiency such as Capital Export Neutrality (CEN), Capital Import Neutrality (CIN) and Capital Ownership Neutrality (CON), but each is based on a consideration of only a partial view of all the decision margins facing companies making cross-border investments.<sup>11</sup> For example, all focus on investment of tangible capital without considering the critical role of the location of intangible capital. Also, none of them takes the opportunities for income shifting into account. As a result,

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<sup>11</sup> The concepts of CEN and CIN, introduced by Richman (1963), have been widely discussed in the literature. The CON efficiency benchmark is introduced in Desai and Hines (2003). We concentrate on these standards which take worldwide efficiency as the goal. Some have proposed national welfare under the assumption that home governments can not obtain reciprocal concessions necessary to approximate worldwide efficiency.

there is frequently not a very good mapping between efficiency criteria such as CEN or CIN that have been proposed and a particular reform alternative. For example, when the details of how a policy really works are examined, it becomes clear that dividend exemption, which appears to be a move toward CIN, is actually a move toward CEN (Grubert and Mutti 2001).

The usual standards that have been proposed such as CEN or CIN explicitly or implicitly make very special assumptions for which there is very little empirical evidence. One issue is the supply of capital available to U.S. multinational companies. For example, CEN assumes that all investment by U.S. companies comes from domestic saving, more correctly from a fixed pool of capital available to the U.S. corporate sector.<sup>12</sup> CIN and CON seem to assume that capital is supplied at a fixed rate by the integrated world capital market, but that is only the start of the story. As mentioned above, all three ignore the presence of intangible assets and how they affect the relationship between investments in different locations, or how opportunities for income shifting under one system or another alter effective tax rates in different locations.

Therefore, even if we accept an integrated worldwide capital market that offers financing to companies on the same terms irrespective of where they are based, that is not sufficient to choose the optimal policy. Consider a potential investment in a low-tax location. The question is what other investments in that or other locations it competes with. We can imagine various situations. One extreme example might be a locational intangible like a fast food trademark that requires that the company produce locally in order to supply its customers. In that case, all competitors compete in the same location and should bear the same (presumably local) tax burden. At the other extreme is a mobile intangible like the design of a computer chip that can be produced in various locations for the worldwide market. In that case, the competitors for the potential low-tax investment may be in high-tax locations including the United States.<sup>13</sup> CIN and CON implicitly assume the first case and CEN seems to lean toward the second where all foreign

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<sup>12</sup> In Roger Gordon's comment to our paper his model makes the assumption of no portfolio mobility which leads to conclusions equivalent to those reached under CEN (see Gordon 2006).

<sup>13</sup> See Grubert and Mutti (1995) for a discussion of the general second-best rule.

affiliate production substitutes for domestic U.S. production. For example, CON fits the case of various bidders for an existing asset, like a pub in Ireland, with a given product and a circumscribed local market that will not be altered by the transaction. None of the standards proposed fits all cases and tax policy cannot feasibly be calibrated to have different rules for different cases.

Furthermore, even if we assume that the low-tax investment only has local competitors, CIN or CON may not be optimal because opportunities for income shifting can magnify the benefit of a low-tax location. The tax planning itself also wastes resources. For example, the investment might be financed by borrowing by a related party in a high-tax location, or the subsidiary may pay low royalties for a very valuable patent, creating very low or negative effective tax burdens. Being part of a multinational company may offer the subsidiary substantially lower tax burdens than purely local competitors.

Accordingly, what reform within an income tax can hope to accomplish is to eliminate unnecessary waste and the possibility of extremely high or low tax burdens that are not justified under any standard. Then we can at least be sure that we are moving toward the optimum without overshooting it and running the risk of making things worse.

#### **IV. The behavioral margins impacted by international tax systems**

As we have stressed above, international tax systems can act on many behavioral margins in addition to the choice of location. The current tax system induces a number of behavioral responses that both waste resources and lead to inappropriate incentives to invest tangible and intangible capital in various locations. These include strategies to avoid the U.S. repatriation tax on dividends, to shift debt from high-tax to low-tax locations, and to shift income to low-tax locations by distorting transfer prices or paying inadequate royalties. Besides directly wasting resources, these strategies can lead to inefficient choices between related party and arms' length

transactions and a distribution of tangible and intangible assets across locations that cannot be justified on any conceptual basis.

In our evaluation of the distortions that may be eliminated by some of the reform proposals, we focus on how the proposals affect the location of tangible capital, the location of intangible capital, the repatriation decision, financing decisions, income shifting, incentives to lower foreign tax burdens, export decisions and host government decisions regarding the taxation of U.S. companies. More is known about the distortion of behavior along some of these margins than others.<sup>14</sup> The remainder of this section reviews available evidence that is of relevance to our analysis of reform options.

#### **A. *The location of tangible capital***

There is ample empirical evidence that the location of assets held in U.S. MNCs is sensitive to variations in effective tax rates across foreign locations.<sup>15</sup> Less empirical work has focused on the role played by repatriation taxes in explaining the distribution of U.S. corporate investment abroad. Grubert and Mutti (2001) and Altshuler and Grubert (2001) use the Treasury tax files to explore whether the location decisions of U.S. MNCs are sensitive to residual U.S. taxes. These papers focus on the location of the real assets held abroad in U.S. manufacturing subsidiaries.

Grubert and Mutti (2001) include measures of repatriation taxes in country-level asset location regressions and find that these taxes do not seem to affect the choice among investment locations abroad. They also present evidence on the relevance of repatriation taxes to location decisions derived from firm-level data that include information on the foreign tax credit position of parent corporations. If repatriation taxes play a significant role in parent's decision making, a

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<sup>14</sup> Hines (1997), Hines (1999) and, most recently, Gordon and Hines (2002) review the literature on the impact of taxation on the activities of multinational companies. We refer to more recent evidence in this section and focus on empirical evidence that can be used to evaluate our options.

<sup>15</sup> See, for example, Grubert and Mutti (1991 and 2000), Hines and Rice (1994), Altshuler, Grubert, and Newlon (1998), and most recently, Altshuler and Grubert (2004).

parent that expects to be in an excess foreign tax credit position should be more responsive to the local tax rate in the host country than a parent that expects to pay a residual U.S. tax. However, the firm-level regressions fail to identify any impact of repatriation taxes on location decisions: parent companies in excess credit positions are no more sensitive to differences in host country tax rates than parents without excess credits.

Grubert and Mutti (2001) use the current excess credit position of the parent to measure prospective repatriation taxes. Altshuler and Grubert (2001) investigate whether alternative measures of expected credit positions will succeed in identifying an impact of repatriation taxes on location decisions. Most of their attempts to identify the tax sensitivity of firms who expect excess credits to shield any home country tax liability fail to find any excess responsiveness. Repatriation taxes do not seem to play a significant role in the location decisions of U.S. multinationals. Altshuler and Grubert do find that firms with large carryforwards of tax credits seem to have more investment in low-tax countries; however the size of the effect is not very significant.

#### ***B. Location of intangible capital***

U.S. direct investment abroad is strongly motivated by the exploitation of intangible assets like patents and trademarks. As discussed in the previous section, the ability to shield taxes on royalties and income shifting opportunities creates an incentive to exploit intangible assets abroad. Even though part of the return on intangibles is paid out in deductible royalties, the evidence suggests that the foreign subsidiary retains a significant portion, which means that a low-tax jurisdiction is a favorable potential location.

There is little empirical evidence on the impact of taxes on the location of intangible capital. Although the returns to intangible assets are not fully captured in royalties, these payments can be used as an indication of where intangible assets are being invested. Data in the Bureau of Economic Analysis (BEA) Benchmark Surveys of U.S. Investment Abroad in 1994

and 1999 suggest that low-tax countries are becoming much more important destinations for U.S. produced intangible assets (see Altshuler and Grubert 2004 for further discussion). Specifically, the share of total affiliate royalties accounted for by Ireland and Singapore doubled between 1994 and 1999. The share of total royalties paid by subsidiaries in these locations increased from 9.3 percent to 20.9 percent, and the share of royalties paid to the U.S. parent increased from 8.4 percent to 19.6 percent. In 1999, royalties paid by Irish affiliates exceeded royalties paid by German or United Kingdom affiliates, and total royalties paid by Singapore affiliates were only 25 percent lower than royalties paid by Japanese affiliates.<sup>16</sup>

**C. *Repatriation planning and the associated efficiency loss***

One important consideration in evaluating reform alternatives is the implicit costs companies incur in order to avoid repatriating income back to the United States. For example, companies can engage in various strategies that avoid repatriation but allow the parent to have use of the income retained abroad (Altshuler and Grubert 2002). The costs of these strategies include payments to tax planners, extra borrowing costs for the parent company, etc. All of the reform proposals we look at eliminate these efficiency losses, either by exempting dividends entirely or by taxing all subsidiary income currently, so it is of interest to know the magnitude of the benefits. The efficiency loss due to the repatriation tax has been estimated using repatriation equations both by Grubert and Mutti (2001) and by Desai, Foley and Hines (2001). These papers used somewhat differing specifications but came to similar conclusions, that the implicit costs of retention are about one percent of total subsidiary pre-tax income. Grubert and Mutti estimated

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<sup>16</sup> Detailed data on royalty payments by subsidiaries from the 2004 BEA Benchmark Survey are not yet available. The U.S. Direct Investment data published annually in the Survey of Current Business, however, does contain information on royalty payments from U.S. affiliates to U.S. parents. The story has not changed. Ireland and Singapore account for almost 20 percent of total royalties. Royalties from Irish affiliates remain larger than those from German and United Kingdom affiliates, and royalties from Singapore affiliates are still significant relative to those from Japanese affiliates (royalties paid from Singapore affiliates are about two-thirds as large as those paid by Japanese affiliates).

that the costs of repatriation tax avoidance strategies were about 1.7 percent of income in locations with an effective tax rate below 10 percent.

But companies' response to the one-year moratorium on the U.S. tax on dividend repatriations in the AJCA of 2004 may suggest that the estimated one percent cost is too low. Under the AJCA provision, companies could bring back accumulated earnings and for the portion above a historical average pay only 5.25 percent before proportionately scaled down credits. They apparently brought back hundreds of billions of dollars in response to this opportunity.<sup>17</sup> Could the implicit costs of deferral be five percent or more in low-tax locations?

We have taken another look at the evidence to see if the companies' response to AJCA is more understandable. In particular we have looked at the impact of large potential accumulations by highly profitable companies as their repatriations change through time. The cost of deferring a given amount of current income presumably rises as the amount of accumulated retained earnings from the past increases. It is more expensive to use more complex strategies after the most obvious uses of retained earnings have been exploited. The regressions in Table 1 in the Appendix report the results of this analysis. We look at the level of current repatriations and how they depend on repatriation taxes and profitability and the interaction of profitability and subsidiary age, which indicate total potential accumulated retentions, with repatriation taxes. The issue is whether ignoring these considerations in the earlier specifications understated the responsiveness of dividends to the U.S. repatriation tax, and thus underestimated the deadweight loss attributable to repressed repatriations.

The regressions in Table 1 in the Appendix thus compare two specifications for the repatriation equation, including one that allows for the possibility that larger accumulations over time reduce the negative effect of the repatriation tax. The data comes from the Treasury tax files for 2002. The dependent variable in each case is the ratio of dividends to subsidiary sales. The

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<sup>17</sup> Data from the Federal Reserve Flow of Funds Accounts show a more than six-fold increase in the after-tax distributed profits of foreign subsidiaries between 2004 and 2005. Repatriated foreign profits in national income grew from \$35 billion in 2004 to \$217 billion in 2005 (Table F7, March 9, 2006).

‘old’ specification just has subsidiary age, profitability and the interaction of current profitability with the U.S repatriation tax as independent variables. The ‘new’ specification adds two interaction terms, the product of profitability and age and the added interaction of that potential accumulation variable with the tax rate.

The results do indicate that the repressing effect of the repatriation tax declines over time. In the new specification, the negative effect of the repatriation tax on dividends by a new subsidiary is much stronger than would be indicated by the coefficient in the old specification. But the negative effect of taxes completely disappears when the subsidiary is about 25 years old. The extent of the bias in the original specification depends on the age distribution of the subsidiaries in the original sample. However, when the age distribution of subsidiaries is considered, the ‘old’ specification did not seem to understate the average responsiveness used to make the former efficiency loss estimate. Nevertheless, tax responsiveness in general may be underestimated because of standard errors-in-the-variables bias. The actual repatriation tax faced by each company is very difficult to estimate because of transitory perturbations. (We use the country average effective tax rate to identify the long run average residual U.S. tax.) Accordingly, in view of the large repatriations after the AJCA one year provision, it may well be that we should attribute a higher cost to the current tax on repatriated income.

***D. Income shifting: Is it getting worse and why is it bad?***

Opportunities for cross-border shifting are an important feature of the current system. Placing debt in high-tax locations and transferring very valuable intangible assets to low-tax subsidiaries without adequate compensation in the form of royalties are probably the most important methods. There is some evidence on the extent to which firms use these two methods, shifting financial income and intangible income, to lower tax burdens. Interest stripping is likely the easiest way for firms to minimize worldwide tax payments. Altshuler and Grubert (2002) present evidence from the Treasury tax files that the financial structure of MNCs is influenced by

local tax rates. In a regression with debt-to-asset ratios as a dependent variable, they show that CFC leverage is a highly significant negative function of local statutory tax rates. Further work with the Treasury tax files suggests that the location of intangible income and the allocation of debt among high- and low-tax countries seem to account for all of the observed differences in profitability across high- and low-statutory tax countries (see Grubert 2003).

As we will see, the proposals differ significantly in their impact on income shifting incentives. Dividend exemption eliminates the current incentive to transfer intangibles out of the United States if the company has excess credits but leaves other opportunities for income shifting in place, if anything stronger. Burden neutral worldwide taxation removes all incentives for income shifting by U.S. companies abroad except for any possible role of continuing excess credit positions. As for the consumption tax alternatives, the destination-based tax has no incentives for income manipulation because the tax base is purely domestic consumption, but an origin-based tax preserves incentives for income shifting because the tax base is domestic consumption plus net exports.

Before proceeding, we should clarify just what the transfer pricing incentives are in the current system. It is sometimes convenient to think of the benefit of shifting a dollar of income from one country to another as simply the difference between the respective statutory tax rates,  $t_1 - t_2$ , but this must be modified because of the U.S. foreign tax credit system. The marginal incentive to shift depends critically on whether the taxpayer has excess credits. For an excess limit taxpayer (a taxpayer without excess credits), the gain from lower income in the high-tax country is not  $t_1 - t_{US}$ , if  $t_1$  is above the U.S. tax rate, because the high-tax subsidiary would create a useable excess credit of  $t_1 - t_{US}$  if it repatriated its income back to the parent. The tax on the foreign income is only at the U.S. tax rate. Similarly, the shift to the low-tax subsidiary has to consider the ‘implicit’ cost of retaining income, including any possible future repatriation taxes. These were discussed in the preceding section of the paper. In any case, the gain is smaller than the simple tax differential.

If the parent is in an excess credit position, the benefit of shifting from one foreign country to another foreign country is the statutory tax differential because repatriation considerations, positive or negative, are irrelevant. But the benefit of shifting income in and out of the United States can be very different. For example, under the “sales source” rules, half of export income can be classified as foreign source. This means that for a company with excess credits, the tax rate on export income is in effect 17.5 percent because half of the income is shielded by credits. Accordingly, the U.S. company has an incentive to overprice exports if the foreign tax rate exceeds 17.5 percent, not 35 percent, because the excess credits can flow over to shield half of the export income.

The effect of excess credits on the incentives for deductible payments made by the subsidiary to the parent is particularly striking. The parent has an incentive to capitalize the subsidiary with loans rather than equity because the interest coming back will be free of U.S. taxes but deductible against foreign tax abroad. More important is the case of royalties which are foreign source under U.S. law. The U.S. MNC will gain from higher royalties from any foreign country with a positive tax rate because the royalties deductible abroad are exempt at home because of the available excess credits. (As noted elsewhere in the paper, about two-thirds of royalties do not result in a U.S. tax liability.) This obviously creates a strong incentive to exploit a mobile intangible asset abroad rather than at home when the worldwide market can conveniently be supplied from either location.

The costs of income shifting may have several sources. One is the cost of the services of lawyers and accountants who plan the transactions. Another is the risk of additional expenses if the transaction is challenged by tax authorities. The shifting costs may also include the greater use of related party transactions instead of arms’ length transactions because the related party transactions provide the opportunities for income shifting.

Income shifting has three significant effects. The first, and most obvious, effect is that companies save tax at the expense of high-tax countries. The second effect is that, as indicated

above, the shifting also uses up real resources including additional accounting and audit expenses and less than optimal financing structures. The third is that opportunities for income shifting alter the tax costs of investing in a particular location. The tax advantages of a low-tax investment are magnified because the investment can become the destination for income shifted from low-tax affiliates. At the same time, the effective tax burden on high-tax investments can be lowered because some of the income generated is taxed at lower rates.

The evidence of income shifting, basically the strong relationship between profitability and local statutory tax rates, goes back a long way (Grubert and Mutti 1991, Hines and Rice, 1994, among others). Altshuler and Grubert (2006), on the basis of a comparison of Treasury data for manufacturing subsidiaries in 1996 and 2000, indicate that income shifting has increased. For example, in identical regressions that used the ratio of pre-tax earnings and profits to sales as the dependent variable, the coefficient for the host country statutory rate was -0.16 in 1996 and -0.26 in 2000. (An analysis of the 2002 files indicates a coefficient similar to 2000). The -0.26 coefficient implies a profit ratio in a country with a 10 percent tax rate that is almost twice as large as one with a 40 percent statutory tax rate. It is important to note that this evidence only pertains to profitability differences among foreign countries. At this point in our knowledge, we do not know whether the high profits in low-tax countries constitute income shifted from another foreign country or income shifted from the United States.

The shifting equations and the 2002 Treasury Controlled Foreign Corporation (CFC) level files can be used to make rough estimates of the deadweight loss and the gain to the companies from income shifting. In fact, if the marginal (and average) costs of shifting are a linear function of the amount of income shifted, these will be equal in magnitude.<sup>18</sup> The data for manufacturing subsidiaries indicate that about eight percent of total affiliate income ends up in low-tax countries because of income shifting. This quantity is found by finding the threshold statutory tax rate  $t_i$  so that the amount of income shifted out, calculated from the coefficient and

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<sup>18</sup> We assume the marginal cost schedule is zero at the origin.

the difference between the subsidiary's tax rate and  $t_i$ , is just equal to the amount shifted in, which is calculated symmetrically for subsidiaries with statutory tax rates below  $t_i$ . But because of planning costs, the high-tax subsidiaries would have kept more than eight percent of total income in the absence of shifting. That is, some income is lost because of the expenses attributable to shifting. We assume that the costs of shifting are borne by the high-tax subsidiary and are deductible at its tax rate.

The linearity assumption, with its implication of equal costs and net gains, means that the tax saving from the income that ends up in low-tax subsidiaries should just be equal to twice the after-tax cost of the shift. That is, the companies' net gain from the shift is equal to the gross tax saving from the income shifted to the low-tax subsidiaries minus the after tax cost of the shift. The tax saving for the income that is shifted to low-tax subsidiaries is calculated from the difference in statutory tax rates between sending and receiving subsidiaries, each weighted by the amount of income shifted. On the basis of these assumptions, we conclude that the efficiency cost of shifting income is 1.7 percent of total pre-tax income, which is equal to the companies' net gain.<sup>19</sup> This company gain is equal to the tax gain from the net income that gets shifted after costs, with the costs assumed deductible at the higher country rates. This rough estimate takes the location of the affiliates as given and considers the available income to be shifted after the locational choices have been made. The next step is to explore how the choice of location is distorted due to income shifting opportunities.

#### ***E. Income shifting and effective tax rates***

As discussed earlier, it is unlikely that we can know with any precision what the efficient burdens on foreign investment should be. Furthermore, it is difficult to know how some of the policy options translate into effective tax rates. Under current law, multinational companies can

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<sup>19</sup> Note that we assume that shifting is between foreign affiliates and not into and out of the US. Taking the possibility of shifting into and out of the US into account would increase the deadweight loss.

use various planning methods to lower their host country tax burdens far below the level paid by local companies. Most of the opportunities for income shifting will continue under dividend exemption.

An example of the difficulty in determining whether tax avoidance opportunities contribute to worldwide efficiency is provided by a simple technique that U.S. companies use to lower tax burdens abroad. They inject equity into a tax haven finance subsidiary which lends the funds to an operating affiliate in another country. The interest is deductible from tax in the host country but can be retained as equity in the tax haven. This is 'inside' debt so the MNC's outside credit status is not affected. It used to be difficult for U.S. MNCs to avail themselves of this device because of the anti-abuse rules in Subpart F, but the 'check-the-box' regulations issued in 1997 greatly simplified the process and led to widespread use of these tax haven finance entities. It is not clear, however, whether their use is an improvement or deterioration in terms of worldwide efficiency. Conceivably they could improve efficiency because companies would switch from locations with low tax rates to those that have very high tax burdens in the absence of the interest stripping. This technique would no longer offer any benefits to the companies under burden neutral worldwide taxation because all income would be included currently in the U.S. tax base. We assume that the corporate tax rate on foreign income will fall in order to keep the total residual tax the same, so that average competitiveness remains unchanged. But the pattern of tax burdens across countries may change and we cannot be absolutely sure that the new pattern improves efficiency.

But it is probably fair to say that negative tax rates on investment in some locations lead to wasteful investments, and this can easily happen under the current system in the case of production abroad with a large intangible component.<sup>20</sup> The negative tax rates occur because

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<sup>20</sup> The literature that studies the sources of income shifting and its implications for real investment is limited. Grubert and Slemrod (1998) investigate the link between income shifting and investment in one particular low-tax jurisdiction, Puerto Rico. Grubert (2003) estimates the implications of income shifting

income is shifted from a high-tax location to a low-tax investment by aggressive transfer prices or a deduction is taken in a high-tax location even though the item produces income in the low-tax jurisdiction. We can take investment in Ireland as an example. The Treasury 2002 files for CFCs in manufacturing indicate that pre-tax profits in relation to sales are almost three times higher in Ireland on average than the group mean. These 'excess' profits presumably reflect the fact that very valuable intellectual property is located in Ireland and the royalties paid back to the United States, while significant, do not fully reflect its contribution. (Parallel regressions for royalties and profits indicate that only about one-third of the contribution of the parent's R&D to CFC profits on average is paid back as royalties.)

We can use these data for Irish manufacturing to construct an example. As noted in Grubert (2004), the link between intangible and tangible investments can be modeled in several alternative ways, but let us make the simplest possible assumptions. Consider a plant producing a high tech product that can be located either in Ireland or the United States. First, we assume that the Irish subsidiary can costlessly defer income indefinitely. Without the intellectual property, the plant would earn a 'normal' pre-tax return of 10, but it would earn 30 with the valuable patent. If the plant is located in Ireland instead of the United States, the company saves 4.5 on the excess return of 20, i.e., the 7 it would pay at the U.S. tax rate less the 2.5 it would pay at the current Irish statutory rate of 12.5 percent. This far exceeds the simple 2.25 difference in tax burdens on the normal return. Even if the Irish plant were much less productive than the U.S. plant, earning only 23 instead of 30, it would still be preferred. The effective tax on the investment in the Irish plant is the Irish tax of 1.25 on the 10 of income before shifting less the 4.5 saved on the shifted income, or a negative 3.25.

The advantages of a low-tax location would be preserved under dividend exemption but not under the constant overall burden worldwide system which would maintain overall

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for real investment in low-tax locations as part of a larger study of the links between intangible income, intercompany transactions, income shifting and location choice.

competitiveness abroad but not necessarily in low-tax jurisdictions. This might be disturbing to the ‘competitiveness’ advocates of CIN or CON. In the context of the earlier discussion of alternative criteria for investment efficiency, intangible or excess returns should be distinguished from returns on ‘standard’ capital. If the United States imposes higher tax burdens on the latter than their foreign competitors, capital can easily flow to the foreign companies who would make the investment instead. But valuable intangibles presumably have some unique features that can be much less easily replicated by foreign companies. One could of course think of models of strategic competition to capture rents of the kind that go back to Brander and Spencer (1985). These models do not seem to have offered very convincing reasons for export subsidies, and indeed the case of intangible assets is identical to the case of exports because it is simply the export of U.S. created services. They are intellectual property that was created in the United States, the value of which has not been included in the U.S. tax base. It is in principle possible that selective export subsidies would improve U.S. welfare, but this would require information about market behavior which is unlikely to be available, apart from any World Trade Organization (WTO) concerns. The same argument would apply to exports of intellectual property.

## **V. Analysis of alternative reform options**

### **A. *Dividend Exemption***

Dividend exemption eliminates the burden of repatriation taxes. But the treatment of dividend remittances is only one element of this reform option. The rules allocating interest and other overhead expenses to exempt income which prevent companies from generating negative tax rates and the full taxation of royalties will affect both location and tax planning incentives. In fact, as we will see, all of the margins we have considered will change under dividend exemption.

And, depending on how it is designed, the system may not be any simpler than the current system.<sup>21</sup>

Start by considering how the incentive to invest in low-tax affiliates abroad changes under dividend exemption for companies that currently have excess credits. The parent faces no repatriation tax under either system. But under dividend exemption there are no excess credits to shield export income and royalty payments. The current “sales source” rules which provide a tax benefit for export income for companies in excess credits would no longer have any impact. The taxation of the royalty stream eliminates the tax benefit to exploit intangibles overseas that exists under current law. This represents a dramatic change from current law. As mentioned in section I, almost two-thirds of U.S. taxes on royalties are currently shielded by excess credits from dividends.

The effect of the interest expense allocation rules is the same under dividend exemption as it is for firms with excess credits under the current system. Both systems impose worldwide fungibility. The difference is that these rules would be relevant for all companies under dividend exemption while they are binding only for companies in excess credits now. Under worldwide fungibility, interest expense in the United States is allocated against foreign source income only if the debt-to-asset ratio on the books of foreign subsidiaries abroad is lower than the worldwide ratio. Because the allocation causes the company to lose a deduction for interest in the United States, this creates an incentive to reduce tax payments abroad by shifting deductions to high-tax countries until the amount of debt abroad reaches the worldwide ratio.

Now consider companies that are currently in excess limit positions. These companies no longer face any tax cost of repatriation and the associated deadweight loss vanishes. While the taxation of royalties does not change, the effect of the expense allocation rules is significantly different under dividend exemption. Companies in excess limit will no longer benefit from the

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<sup>21</sup> See Grubert and Mutti (2001) and Graetz and Oosterhuis (2002) for analyses of the simplification potential of dividend exemption systems.

ability to deduct expenses at the higher U.S. rate while retaining low-tax income abroad. As a result, companies will find it much more difficult to generate extremely low effective tax rates on investments abroad. Under dividend exemption, companies formerly in excess limit positions will now have an incentive to shift debt abroad until the debt to asset ratio on the books of foreign subsidiaries equals the worldwide debt to asset ratio.

Altshuler and Grubert (2001) use effective tax rate calculations for typical investments in low-tax affiliates to quantify the burden of U.S. taxes under the current system and dividend exemption.<sup>22</sup> The results are of interest since the dividend exemption regime they model is the same one we consider.<sup>23</sup> Based on data from the Commerce Department, the calculations assume that the typical investment abroad is comprised of 85 percent tangible assets and 15 percent intangible assets and is financed with a mix of debt (U.S. and local) and equity. The effective tax rate is a weighted average of the rates faced by excess limit and excess credit companies. The weights are based on information from the Treasury tax files. The affiliate is located in a country with a statutory tax rate of seven percent which is assumed to equal the local effective tax rate on net equity (the host country allows for economic depreciation on tangible capital and grants no investment tax credit). The effective tax rate estimates include the estimated efficiency loss from deferred repatriations based on Grubert and Mutti (2001) and discussed above in section IV.

Using these parameters, Altshuler and Grubert (2001) calculate that the effective tax rate for a typical investment in a low-tax affiliate for U.S. companies increases from about five percent under current law to about nine percent under dividend exemption. For an investment in intangible assets, the effective tax rate increases from about 26 to 35 percent. These effective tax rate calculations do not take income shifting into account and, as a result, may overestimate the actual burdens companies will face in low-tax jurisdictions. The results of the effective tax rate

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<sup>22</sup> The model is an extension of the one presented in Grubert and Mutti (2001).

<sup>23</sup> The effective tax rate estimates in both Grubert and Mutti (2001) and Altshuler and Grubert (2001) assumed allocations to exempt income under worldwide fungibility.

analysis do suggest that, as Grubert and Mutti (2001) first pointed out, dividend exemption may move the U.S. tax system closer to one that preserves CEN.

Under dividend exemption, many companies will have an incentive to engage in tax planning to try to undo the increase in the effective tax rate on intangible assets in low-tax locations. In particular, companies have an incentive to lower royalty payments and increase exempt equity income that can be repatriated tax free as dividends. Companies may underpay royalties by using inappropriate transfer prices or other devices. In fact, the empirical analysis in Grubert (2001) suggests that a move to dividend exemption may lead to a significant decline in royalty payments.<sup>24</sup> As a result, the incentive to exploit intangibles abroad, although reduced due to the full taxation of royalties, still exists under dividend exemption.

As this discussion has made clear, dividend exemption does not solve income shifting problems. It simply removes the repatriation tax burden. However, relative to the current system, income shifting becomes more attractive under exemption only to the extent of the burden of the repatriation tax, which we think is small.

To sum up, dividend exemption removes the repatriation burden and may lead to a more efficient distribution of assets abroad by reducing opportunities to drive effective tax rates for investment abroad to extremely low levels through the low or zero tax on royalties and the frequent ability to deduct interest expense fully against domestic income. Although we do not know what efficiency criterion is optimal, it is safe to say that this outcome would be an improvement relative to the current system. However, the incentives for transfer pricing and understating royalties make it difficult to give a precise evaluation of the overall effect of dividend exemption on future tax burdens.

It should also be noted that dividend exemption gives foreign governments the incentive to lower taxes on U.S. companies. This is one of the behavioral margins that should be

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<sup>24</sup> Hines (1995) and Grubert (1998 and 2001) have found that royalty payments received by U.S. MNCs are responsive to tax prices.

considered in the evaluation of alternative reforms. Under the worldwide tax alternative, foreign governments do not have this incentive since firms will (for the most part) be in excess limit positions. If anything foreign governments would have the incentive to raise their taxes on U.S. companies because it would have no effect on investment and would simply be offset by U.S. credits.

***B. Constant burden worldwide taxation***

Constant burden worldwide taxation seems to dominate both the current system and dividend exemption. However, as mentioned in the introduction, the attractiveness of the regime ultimately depends on the extent to which companies find themselves in excess credit positions. To fix ideas, start by assuming that no firms end up with excess credits. Consider the behavioral margins we have focused on under this new tax system. There is no efficiency loss associated with repatriating income back to the United States since all subsidiary income is taxed currently. There is no incentive to engage in income shifting: eliminating deferral removes the benefit of moving income offshore and from high-tax to low-tax locations through transfer pricing.<sup>25</sup> The benefits of offshore tax havens are no longer relevant. Effective tax rates for investment in tangible and intangible assets will not vary across locations.<sup>26</sup> Tax considerations will no longer affect financing decisions. Companies do not have to make expense allocations. The tax system is simpler and less wasteful.

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<sup>25</sup> Transfer pricing rules would still of course be necessary for foreign companies operating in the United States.

<sup>26</sup> There is some limited evidence that adopting the constant burden worldwide tax system would decrease the sensitivity of location decisions to differences in host country tax rates. The Tax Reform Act of 1986 (TRA'86) provides an interesting case study. TRA'86 added foreign tax credit baskets, making cross-crediting more difficult, and limited deferral on active financial income. Altshuler and Hubbard (2002) investigate the impact of local effective tax rates on the location of assets held by financial parents before and after TRA'86. They find that the allocation of assets held in financial subsidiaries was more sensitive to taxes than the allocation of assets held in manufacturing subsidiaries prior to TRA'86. Interestingly, Altshuler and Hubbard find a drop in both the magnitude and significance of the effect of differences in host country tax rates on asset location choice after TRA'86. In fact, the authors find that host country taxes play no role in the allocation of assets held in financial subsidiaries after TRA'86.

Admittedly, eliminating parent overhead expense allocations seems to contradict the tax principle that foreign income should be measured correctly. But it would result in a great deal of simplification. Furthermore, retaining them would require a lower tax rate to keep the tax burden on foreign income unchanged and it would increase the frequency of excess credits. Requiring expense allocations would increase excess credits in the first instance and they would increase even further as the tax rate drops to maintain burden neutrality. Because all worldwide income is included in the U.S. tax base, the main policy issue from eliminating allocations is the mirror image of the excess credit issue. Foreign governments may have an incentive to raise taxes on U.S. companies if they are in excess limit with no deferral privilege because there would be no risk of discouraging U.S. investments.

Since foreign tax credits would be limited (for the same policy reasons as under current law) some firms could find themselves with excess foreign tax credits. The presence of excess credits creates tax benefits for engaging in tax planning. Shifting income out of the United States and to low-tax locations from high-tax locations is attractive if excess credits are available to shield the residual U.S. tax. Low-tax locations are attractive for tangible and intangible assets when firms have excess credits as are planning techniques that lower foreign tax burdens. In short, knowing the burden neutral rate and frequency of excess credits at that rate are essential to evaluating the attractiveness of this policy option. To be sure, the burden neutral worldwide option increases effective tax rates on investment in low-tax countries while preserving overall competitiveness, but within the state of current knowledge we cannot be certain that this improves the efficiency of the worldwide allocation of capital.

### ***The Burden Neutral Tax Rate on Worldwide Foreign Income***

The intent of lowering the rate is to keep the overall ‘competitiveness’ of U.S. operations abroad unchanged, although there would obviously be winners and losers across the group of MNCs. An important step in evaluating this option is finding what the corporate rate would have

to be. The Treasury corporate tax files were therefore used to make a rough estimate of this “burden neutral” rate. All subsidiary income is taxed but first intercompany dividends have to be removed from income. Otherwise the income would be counted twice, in both the paying and receiving subsidiary.

The calculation of the burden neutral tax rate required, among other steps, the estimation of what foreign tax credits would accompany the newly included income. The difficult part of taking out dividends as they come up the tiers is knowing the taxes that come up with the dividends. Companies seem to include the taxes paid lower in the tier in the foreign taxes they report on the information return they file for each CFC with their tax returns, the Form 5471. Under current law, the parent receives a credit for these taxes when the income is finally repatriated.<sup>27</sup> Because of this problem of knowing which taxes are included with the dividend, the estimates are probably subject to substantial uncertainty.

As indicated earlier, the calculation left the taxation of domestic corporate income unchanged because we focus only on foreign income. (We ignore the pool of previously unrepatriated income which could be subjected to a small one-time tax under the reform option.)

Accordingly, the burden neutral rate based on ‘static’ calculations is about 28 percent. (As noted above, this estimate is not intended to be and should not be interpreted as an official Treasury estimate.) We can expect both positive and negative behavioral responses. Companies would have less of an incentive to lower foreign taxes, which would lose U.S. revenue because of the higher credits. On the other hand, companies might have less of an incentive to shift income out of the United States, which would lower foreign tax credits.

The previous discussion showed that it is important to estimate the frequency of excess credits in this new scheme. If a company has excess credits, it still has an incentive to shift income from the United States and other high-tax countries to low-tax countries. Any tax saving

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<sup>27</sup> The inclusion of these taxes in the Treasury data may explain the large discrepancy in estimated average effective tax rates for holding company countries like the Netherlands depending on whether Treasury or Commerce Department data are examined.

is not offset by increased U.S. tax. Calculations from the Treasury tax files indicate that about 30 percent of active foreign source income would continue to be in excess credit at the 28 percent rate. This compares with 50 percent of total foreign income that is earned by companies in excess credit in 2002 under current law. The 30 percent of income in excess credit under the burden neutral proposal is dominated by petroleum companies which often pay very high taxes in producing countries.<sup>28</sup> Only 18 percent of the foreign income earned in manufacturing companies would be in excess credit.

Companies that operate mainly in low-tax locations abroad may find that the 28 percent rate puts them at a competitive disadvantage. Lowering the rate even further may offset any impact on competitiveness but at the same time will increase the frequency and size of excess credits. For example, lowering the tax rate from 28 to 20 percent would raise the manufacturing income in excess credit from 18 to 42 percent. With more firms in excess credit positions, the benefits of the reform relative to the current system are reduced. Evaluating the tradeoff between a lower rate and the occurrence of excess credits is difficult since it depends on the extent to which foreign governments respond to the lower U.S. rate, among other things.

### ***The Balance of Corporate and Personal Taxation***

If the corporate tax rate is reduced to 28 percent, the tax burden on domestic corporate income would go down substantially even with base broadening such as the elimination of accelerated depreciation. But changing the mix of corporate and personal taxation in this direction is the correct response to the increase in capital mobility worldwide. The corporate-personal split of a given combined tax on corporate income, which is largely irrelevant in a closed economy, can become very important as capital mobility increases. Let us abstract from the specific cross-border issues such as income shifting we have been discussing and assume that

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<sup>28</sup> The estimated excess credits in petroleum may be overstated because many of the companies may be choosing the safe harbor rule for the crediting of some very high petroleum taxes abroad. They can choose to credit these at the U.S. rate, which would fall to 28 percent under the proposal.

corporate and personal taxation correspond completely to source and residence taxation. There are no repatriation taxes at the corporate level and we rule out income shifting. If portfolio capital mobility increases, U.S. individual shareholders find it easier to escape a burdensome U.S. corporate tax by investing in foreign companies. As globalization increases, foreign companies may find it easier to base their operations in low-tax countries from which they can supply the U.S. market. Lowering the corporate component of the tax on capital would offset these behavioral reactions and move in the direction of a more efficient tax system. The coordinated burden neutral scheme would increase the competitiveness of the domestic corporate sector while preserving the competitiveness of U.S. companies abroad.

Admittedly, the 28 percent rate will create some big winners and losers even though it makes the companies as a group whole and they save a great deal in reduced planning costs. (The government also gains in lower enforcement costs.) The losers would be the companies who concentrate their activities in low-tax locations. One possibility is that some of the losers may 'invert', i.e. expatriate, by incorporating in a tax haven. This may be difficult for companies with valuable intangible assets because of the toll charge in U.S. law. The Tax Reform Panel did recommend that the U.S. rule specifying that the residence of a company depends purely on place of incorporation be expanded. In any case, this is a serious issue which we hope to explore more fully in future work.

Lowering the corporate rate to 28 percent while retaining the top personal rate of 35 percent might induce high-income taxpayers to shelter more of their income in corporations. But the remaining tax on dividends and capital gains would reduce the attractiveness of that strategy. If anything there seems to be the opposite incentive under current law.

**C. *Destination-based and origin-based consumption taxes***

The two consumption tax bases have different implications for some important behavioral margins.<sup>29</sup> As explained above in section II, a destination-based tax is a tax on consumption in the United States. Exports are exempt from tax and imports are taxed. An origin-based tax has a slightly more complicated base: domestic consumption plus net exports. It is convenient to think of the origin-based tax as a prepayment system compared with the destination-based tax. As indicated before, under the origin base the tax is prepaid on the exports going out. Eventually, a destination tax collects an equivalent amount of tax on the imports financed by additional exports if the value of additional exports equals the present value of the additional imports they finance. Thus, the equivalence between the bases holds only when prospective investments abroad earn normal returns (a dollar invested abroad finances imports with a present value of a dollar).

Because imports and exports appear in the determination of the origin tax base, companies have an incentive to understate the value of exports and overstate imports. In contrast, the destination tax base is pure unrelated party consumption. Transfer price abuse can create above-normal returns which break the equivalence between the bases. Under the origin base, the tax on exports works like a prepayment mechanism which has the effect of exempting any above-normal returns from tax. Exports include royalties which may be thought of as payments on the export of an intangible asset. The origin base therefore provides incentives to shift income to low-tax locations abroad through transfer pricing.

The destination base seems to dominate the origin base by removing important transfer pricing incentives. Up to this point, however, we have ignored the importance of the internet and

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<sup>29</sup> Much of the material in this section is drawn from the comprehensive analysis of the international implications of consumption taxation that appears in Grubert and Newlon (1995).

downloads by consumers of software and entertainment.<sup>30</sup> Under a destination-based tax there is an incentive to shop in the country with the lowest tax rate. This incentive is eliminated if boundaries can be monitored (except to the extent that both the shopping and the consumption are done abroad creating what is called the “tourism” problem). While it is possible to tackle this problem in the case of packages which can be checked at the border, it is particularly difficult (if not impossible?), however, to monitor the border when transactions take place over the internet. Whether the revenue and efficiency loss associated with this cross-border shopping problem are large enough to make the transfer pricing problems of an origin-based tax attractive is an open question.<sup>31</sup>

A consumption tax eliminates the marginal tax on investment in the United States and would increase investment in the U.S. business sector by both domestic and foreign companies. As Grubert and Newlon (1995) note, the effect on net capital inflows and the overall U.S. capital stock is ambiguous because of the possible outflow of capital from the nonbusiness sector, particularly housing. If this causes a decrease in U.S. interest rates, the outflow of investment in debt, which is highly mobile, might outweigh the inflow of equity into the business sector.

#### ***D. A destination-based income tax?***

Some economists, notably Gary Hufbauer, have suggested that the U.S. corporate tax be put on a destination basis, with a rebate for exports and a tax on imports.<sup>32</sup> Apart from WTO problems, this has obvious purely mechanical difficulties because the corporate tax only applies to part of the economy. It is not clear what tax would apply to imports by consumers or noncorporate entities. In addition, if companies could continue to enjoy the deferral of income

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<sup>30</sup> Downloads are not a problem for business imports because they do not get a deduction. Under a subtraction method VAT companies would presumably only get a deduction if they bought from a registered taxable taxpayer. In an invoice-credit system they would have no credits against VAT liabilities.

<sup>31</sup> David Bradford attempts to address this conflict by proposing a rather complex scheme that combines an origin base for cross-border shopping with a cash flow type of tax for business to eliminate transfer price abuse (see Bradford 2004).

<sup>32</sup> For an early discussion of a destination-based income tax, see Carlson, Hufbauer, and Krauss (1976).

abroad, the rebate on exports implies that they could invest pre-tax income abroad in a low-tax location and effectively obtain consumption tax treatment. There would only be a tax when the investment was liquidated and used to finance imports.

But let us abstract from these problems by assuming the same income tax on all business entities and that all trade is through these entities. Furthermore, income cannot be deferred abroad. (This would require very complicated rules.) Under these very extreme assumptions, it appears that, as in a consumption tax, the exclusion of exports from the tax base and the nondeductibility of imports from the tax base would not distort trade because the rebate on the export side just offsets the tax on the import side. Furthermore, there would be benefits in reduced transfer pricing incentives because of the exclusion of exports and imports from the tax base.

There is one major remaining difficulty because of the fundamental difference between a consumption tax and an income tax. (This was pointed out to us by Dan Shavero.) Unlike an income tax, a consumption tax does not require accruals and capitalizations. Therefore consider an exporter who gets a rebate on his export sales and uses the proceeds to buy a foreign machine that he brings back. He cannot get a deduction for the machine but this may not be very damaging because the machine would have to be depreciated over its lifetime and the present value of these depreciation deductions may be small. In the extreme the machine could last forever. But by being able to buy it with pre-tax dollars, he effectively gets expensing for the machine. This would be the right result under a consumption tax because all investment is expensed, irrespective of whether the machine is foreign or domestic. The rebate on exports in an income tax is, however, a clear incentive to buy foreign machines.

## **VI. Conclusions**

We have used the available evidence to evaluate two options for the reform of the taxation of cross-border corporate income. One option is the exemption of dividends from active

business income abroad. The other is burden neutral worldwide taxation in which all of a U.S. multinational company's worldwide income would be taxed currently, but the overall U.S. burden on foreign direct investment income would remain unchanged by eliminating the allocation of parent overhead expenses to foreign income and lowering the basic corporate rate. The evaluation required looking at the various behavioral margins that the international tax system can have an impact on. These include the choice of repatriations, the location of business activity, particularly where intellectual property is exploited, and the location of income through the shifting of debt and the pricing of intercompany transactions.

Dividend exemption offers an efficiency gain by eliminating the need to avoid repatriations and the costs that entails. Furthermore, it does not increase the attractiveness of low-tax locations compared to current law. The reasons are the full taxation of royalties, which are no longer shielded by excess credits arising from dividends, and the allocation of overhead expenses to exempt income which would directly reduce deductions against domestic taxable income.

But the burden neutral worldwide option promises broader benefits. In particular, for most companies it will eliminate incentives for locating income in low-tax locations. Therefore a great deal of tax planning will become unnecessary and effective tax rates on investing in low-tax locations will not be affected by income shifting opportunities. At the same time, the companies are at a minimum made whole by the lower corporate rate and the elimination of expense allocations.

However, the burden neutral worldwide option requires a substantial cut in the corporate rate, to about 28 percent. Applying this rate to all corporate income would imply a reduction of the effective tax rate on domestic income, even with feasible base broadening. But we suggest that this might be accomplished, within a fixed revenue constraint, by shifting more of the taxation of corporate income to the personal level. That would in any case be an appropriate response to increased globalization. It would increase the attractiveness of the United States for

investment by both foreign and domestic companies, and it would reduce the incentive for individual U.S. shareholders to escape the impact of the U.S. corporate tax by investing in lightly taxed foreign companies.

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**Appendix Table 1**  
**Another Look at Repatriation Equations: Simple Specifications**

	CFC	
	Dividends / Sales	
	(1)	(2)
CFC Earnings / Sales	0.293*** (0.044)	0.524*** (.057)
CFC Earnings / Sales * Residual U.S. tax	-0.697*** (0.171)	-1.92*** (0.231)
CFC age	0.000 (0.001)	
CFC Earnings / Sales * CFC age		-0.111*** (0.018)
CFC Earnings / Sales * CFC age * Residual U.S. tax		0.740*** (0.099)
CFC Earnings / Sales * CFC age * Residual U.S. tax * Parent excess credit expectations		-0.346 (0.247)
Constant	0.004 (.004)	0.007 (.003)
Adjusted R <sup>2</sup>	0.10	0.19
Number of observations	752	752

Data source: 2002 Treasury tax files. See appendix for further details.

Notes: Standard errors in parentheses. The Treasury tax files and variables are described in the appendix. Observations are weighted by CFC sales. \*\*\* denote statistical significance at the one percent level. See appendix for description of variables.

## Appendix

### *Data sources*

The basic data source for the regressions reported in Appendix Table 1 and the estimates reported in the paper are the linked Forms 1120, 1118, and 5471 Treasury tax files for 2002 provided by the Statistics of Income Division of the Internal Revenue Service. The Form 1120 is the basic corporate return giving the parent's income and deductions. Corporations use Form 1118 to claim a foreign tax credit and report all repatriated income as well as deductions. Multinational companies file a Form 5471 for each of their controlled foreign corporations (CFCs). This form gives the CFC's income, foreign taxes paid and transactions with related parties including the parent. The statutory tax rates used in the calculation of the efficiency loss due to income shifting in section IV are taken from Price Waterhouse (2002).

### *Description of variables in Appendix Table 1*

The coefficient estimates in Appendix Table 1 are from regressions using CFC information from the Form 5471 and parent information from the Form 1118. The sample includes the manufacturing CFCs (with the addition of software companies) of non-financial parent companies. Only CFCs with positive earnings and profits (E&P) are included in the analysis. The observations are weighted by CFC sales. The dependent variable is the ratio of CFC dividends to sales. The "old" specification, described in the text and shown in column 1, includes measures of CFC profitability, CFC age and the parent's dividend repatriation tax. We control for profitability by including CFC E&P as a proportion of sales as an independent variable. CFC age is based on date of incorporation. The residual U.S. tax is the tax price of dividend repatriations assuming the parent is in excess limit. The country's average tax effective tax rate is used to construct the residual tax and is calculated by dividing taxes paid by E&P before tax. As described in the text, the "new" specification shown in column 2 includes a

measure of potential accumulated profits and the interaction between the accumulation variable and a measure of parent excess credit expectations. Our measure of potential accumulated profits is a simple interaction of current profitability, CFC E&P/sales, with CFC age. We measure parent excess credit expectations as the ratio of taxes paid on dividends to total dividends (both variables are from the 1118 form). The higher is this effective tax rate on dividends, the larger are potential credits, and the more likely the parent will find itself with excess credits in the current period *and* credit carryforwards that would prevent future dividend remittances from facing any repatriation tax.