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# Tax Planning by Companies and Tax Competition by Governments

## Is There Evidence of Changes in Behavior?

Harry Grubert

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### 5.1 Introduction

Many claims have been made in recent years, both by the popular media and by prominent economists, that we are living in a period of more aggressive tax planning by multinational corporations (MNCs) and more intense tax competition by governments (Tanzi 1996). The source of such claims is globalization brought on by the relaxation of controls on trade and capital and by the revolution in communications. This paper examines the extent to which the evidence supports these claims. The emphasis is on the period from 1984 to 1992, for which the available U.S. Department of the Treasury firm-level files can be used, supplemented by published data for the years after 1992. In addition to the firm-level data, changes in average effective tax rates in sixty countries are used to examine the responses of governments to the new global environment.

Various areas of MNC and government behavior are examined. One is the effective tax rates that MNCs pay to host governments. Have some U.S. companies been able to obtain larger than average tax concessions through tax planning? In addition to the question of the tax *rate* is that of the tax *base* to which the effective rate applies. Have U.S.-based MNCs been able to shift larger amounts of income to low-tax locations? Is more company debt put on the books of high-tax affiliates? Have U.S. subsidiar-

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ies abroad paid out more royalties to their parents because their parents expect to have excess credits that can shield the royalties from U.S. tax?

Turning to the behavior of governments, did the pattern of declines in effective tax rates suggest increased tax competition? Was there a significant convergence in effective tax rates? Were there disproportionate declines in more homogeneous regions, such as the European Economic Community (EEC), where tax competition might be expected to be more intense? Did governments grant greater concessions to new companies or to internationally mobile industries, such as electronics and finance?

The possibility that MNCs have managed to lower their foreign tax rates through tax planning or that governments have increased their concessions to MNCs is suggested by Grubert, Randolph, and Rousslang (1996), who found that the average foreign tax rate on the repatriated income of U.S. parent companies declined from 36 percent in 1984 to 25 percent in 1992. The decline was attributable primarily to a reduction in host-country effective tax rates. The increased importance of royalties at the expense of dividends also played a role. The country-by-country changes in effective tax rates reported by U.S. companies are generally larger than one might expect from published reports of tax reforms or available estimates of changes in Hall-Jorgenson marginal effective tax rates. One question, therefore, is the extent to which company tax planning may have contributed to this large fall in the burden of taxation abroad. Another question is whether countries gave preferences to certain kinds of industries or companies.

A way of evaluating any company role in falling effective tax rates is to attempt to identify those companies that might be expected to take advantage of the changed international environment. There are at least two alternative hypotheses, however, for which companies might make the greatest effort to lower their foreign tax burdens. One is based on the incentive to reduce excess foreign tax credits. For some companies, incentives for lowering foreign tax burdens were greatly increased by the Tax Reform Act of 1986 (P.L. 99-514). The Tax Reform Act of 1986 (TRA 1986) reduced the U.S. corporate tax rate from 46 to 34 percent. Companies with overall average foreign tax rates on net repatriated income higher than 34 percent (not just those with rates higher than 46 percent) would now have excess credits. Companies that, as a result, might now expect to be permanently in excess credit would have a much greater incentive to reduce foreign tax rates than would companies whose average foreign tax rates were already lower than 34 percent in 1984. In addition, the companies with overall foreign tax rates initially higher than 46 percent would attempt to take advantage of new opportunities for reducing foreign taxes.

The alternative hypothesis is basically the mirror image of the first one. If a company had a low overall foreign tax rate in 1984, one explanation is that its operations were mobile. It might be expected to have achieved

the largest declines in its effective tax rates in any given location after 1984 if countries began to compete for its locations more aggressively. For example, the company might threaten to leave if it were not granted special concessions. Another possibility is that the parent company had a low overall foreign tax rate in 1984 because it was innovative in tax planning. Globalization might give the parent new opportunities to use its experience to lower its tax rates even further. In either case, the company would gain not in the form of lower taxes no longer useful as credits, but in the form of lower foreign taxes on income it retained abroad.

Although it is convenient to distinguish between the behavior of governments and the behavior of companies, it is frequently impossible to identify the source of a tax differential, which is presumably brought about in a mutual process. If a government lowers its tax rate by the same amount to all entrants, that lowering can fairly be regarded as a country response. If a company shifts income because of a difference in statutory tax rates, the shift can be referred to as a company response. Other cases are more ambiguous, however. If companies with initially low average worldwide tax rates succeed in achieving even larger reductions, they may have been able to do so because of either their innovations in tax planning or their being able to get even greater concessions from governments because they are mobile.

The evidence provides some signs of changes in behavior by companies. Parent companies with low overall foreign tax rates in 1984 did enjoy significantly greater declines in effective tax rates in a given location than did the average U.S. parent. Accordingly, the aggressive-or-mobile-parent hypothesis dominates the excess-credit hypothesis, although anticipated excess credits seem to have played a role in the switch from dividends to royalties. Income shifting from high-tax to low-tax locations also seems to have become more aggressive, judging by the differential in the pretax return on assets for a given difference in statutory tax rates. However, the allocation of debt between high and low statutory tax countries was very stable. In both 1984 and 1992, leverage is strongly influenced by local tax rates but the equations are virtually identical in both years.

The evidence of increased tax competition at the country level is also mixed. Effective tax rates fell on average but there was a wide diversity of behavior among countries. The concessions enjoyed by newly investing companies compared to mature companies were about the same in 1992 as in 1984. The gap between the effective tax rate on finance affiliates and manufacturing subsidiaries widened only slightly, if at all. More mobile manufacturing industries, such as electronics, did not enjoy greater tax reductions. Tax rates did not fall more in homogeneous areas with low trade barriers, such as the EEC. Furthermore, countries did not aggressively attempt to attract tax bases, as opposed to real activities, by disproportionately lowering statutory tax rates compared to effective rates. In-

deed, statutory tax rates fell less than effective rates in absolute terms even though they were much higher to start with.

That said, there are significant signs of heightened tax competition by governments. The smaller, poorer, and more open countries lowered their tax rates the most. They might be expected to be most affected by the increased mobility of capital. Also, the implications for foreign governments of the apparent increased tax sensitivity of real U.S. investment found by Altshuler, Grubert, and Newlon (chap. 1 in this volume) suggest that tax competition may explain the large fall in effective tax rates that took place. What if governments set tax rates on U.S. companies only in order to maximize revenue? Using the Altshuler-Grubert-Newlon elasticity (with respect to  $(1 - t)$ ) of 1.53 in 1984 and 2.77 in 1992, we find that the simple revenue-maximizing tax rate on inbound U.S. investment in manufacturing decreased from 39.5 percent to 26.5 percent.<sup>1</sup> This is only slightly larger than the mean change in average effective tax rates that actually occurred, and the levels match pretty closely as well.

What are the implications of this mixed picture? Why is there not a more consistent pattern of reactions to globalization? Perhaps “globalization” has not been occurring as fast as supposed. Indeed, U.S. Department of Commerce evidence indicates that interaffiliate transactions have not increased in relative importance since 1977. The gross product of U.S. manufacturing affiliates abroad grew at about the same rate as U.S. manufacturing from 1982 to 1994. It may be that the new incentives for tax planning created by TRA 1986 were not very significant to start with because of the opportunities for deferral that had always existed; or it may be that the incentives were diluted by governments’ reducing effective tax rates on their own largely for domestic purposes.

Recent accounts of the growing importance of tax planning and tax competition may also overlook the weapons that governments have at their disposals to resist the erosion of their tax bases. Countries have become more aware of potential transfer pricing abuses and have introduced new regulations. Many home governments have either introduced new or strengthened existing controlled foreign corporation (CFC) rules that reduce the benefits of using tax havens for passive and other income. Indeed, the expanded current U.S. taxation of financial CFCs mandated by TRA 1986 may be one reason finance affiliates did not obtain greater tax benefits from host governments.

Furthermore, governments may be able to do much more on their own. Evidence at the end of this paper suggests that perhaps the U.S. CFC rules, which are probably the most restrictive of those of the major industrialized

1. This is based on countries’ assuming that the pretax rate of return will remain the same as the tax rate is lowered.

countries, may not go far enough. A substantial amount of tax haven income seems to escape current U.S. tax.

Turning to methodology, the results call into question the common use of a parent company's excess credit position as an exogenous variable in studies of MNC behavior. Companies are not born high-tax or low-tax, nor are they assigned randomly to these categories. If a company has managed to arrange a low-average effective tax rate on its foreign operations, it might be that its behavior is systematically different from that of its U.S. counterparts.

The plan of the paper is as follows: Section 5.2 reviews the incentives for tax planning by U.S. multinational companies and how these may have changed as a result of TRA 1986. It also summarizes recent data on the extent of globalization. Section 5.3 describes the data used in the empirical analysis. Because a company's expectations about its excess credit position may be important in its tax-planning strategy, section 5.4 begins the empirical analysis by evaluating alternative predictors of a company's future excess credit status. The results are used as building blocks in the subsequent sections. Section 5.5 presents the basic empirical results of the relationship between an MNC's overall worldwide tax rate in 1984 and the change in the tax burden on its operations in each country from 1984 to 1992. Each parent company's operations in a given location in 1984 and 1992 are linked to see which type of company obtained the largest tax reductions. Sections 5.6 and 5.7 use parallel regressions at the CFC level for 1984 and 1992. Section 5.6 examines CFC effective tax rates to see if countries have given greater tax concessions to new, more mobile operations. Section 5.7 compares income-shifting behavior in 1984 and 1992 to see if reported CFC profitability has become more sensitive to local tax rates. It also determines whether more debt is being placed in high-tax CFCs, because this is one of the ways in which taxable income can be shifted in the worldwide company. Section 5.8 examines the relationship between excess credit expectations and the change in royalties received by the parent to determine whether companies that expected to be in excess credit received more royalties from their affiliates. Section 5.9 switches the focus from the company level to the country level to determine which countries cut their tax rates on U.S. companies the most. The object is to see if we can identify patterns consistent with increased tax competition. Section 5.10 reviews CFC rules that eliminate the benefits of using tax havens.

## **5.2 The Changed Incentives for Lowering Foreign Taxes**

### **5.2.1 The Effect of the Tax Reform Act of 1986**

The TRA 1986 made several changes affecting companies' tax planning incentives: (1) Most importantly, it lowered the statutory U.S. tax rate to

34 percent from 46 percent. Accordingly, any company whose foreign tax rate on distributed income would have been between 46 and 34 percent had an increased incentive to lower foreign taxes because, on the margin, foreign taxes had no value as credits. (2) Companies were required to allocate more U.S. expenses, particularly interest, to foreign source income for the purpose of calculating the foreign tax-credit limitation. This would tend to drive some companies into excess credit and increase the excess credits of those already over the threshold. (3) The tightening-up of the antiabuse rules in subpart F of the U.S. Internal Revenue Code, providing for the current taxation of “passive” and other tainted CFC income, reduced the benefits of tax planning. The *de minimis* threshold for the amount of tainted income that would trigger current U.S. tax was lowered substantially. In addition, the “active banking” exception for passive income was eliminated. Prior to TRA 1986, an “active” financial operation abroad was not subject to current U.S. tax on investment income such as interest.

If a company starts to have excess credits because of the lowering of the U.S. corporate rate, it obviously has an incentive to reduce its foreign taxes as long as it does not increase U.S. taxable income. A lower foreign tax burden can be achieved in various ways. The company may attempt to negotiate or otherwise arrange lower effective rates in its locations abroad. It could increase the amount of income it has in low-tax locations, either by shifting the location of real activity or by shifting the location of income. Altshuler, Grubert, and Newlon in this volume examine the change in the tax sensitivity of real investment. This paper focuses on planning that lowers effective tax rates or shifts income.

It is necessary, however, to be more precise about the changed incentives for income shifting. Because of the opportunities for deferring income in low-tax locations, the change in incentives for some types of income shifting may not have been great when TRA 1986 caused a company to move from excess limit to excess credit. If the parent is in excess limit, income can be shifted from a high-tax foreign country to a low-tax location where repatriation to the United States can be deferred. The only offset to the tax savings in the high-tax country, compared to a company with excess credits, would be the additional credits that distributions from a high-tax country could generate to the extent that its effective tax rate was above the U.S. rate.<sup>2</sup> If a company is pushed into excess credit by the reduction in the U.S. tax rate, the value of low-tax income will increase only to the extent of the present value of the U.S. taxes that would have been paid

2. Even these might not all be currently used as credits against U.S. tax because CFCs do not generally distribute all of the income. Furthermore, a country may have a high statutory tax rate, which determines the value of shifting income on the margin, but a low average effective rate, which would result in a positive repatriation tax if income is repatriated. (See Grubert 1998.)

formerly, when the low-tax income was repatriated. (As I explain later on, the company can get a further benefit if it can bring the low-tax income home as a royalty because it is deductible abroad and exempt in the United States.) The net change resulting from TRA 1986 may be small if most of the low-tax income had been retained abroad and the tax rate in the high-tax country was not far above the U.S. rate, creating few spillover tax credits.

Turning to the incentives for shifting income in or out of the United States: When a parent company is in excess limit, shifting income from the United States to a low-tax location where the income is deferred can be very profitable. On the other hand, shifting income from a high statutory tax country to the United States in the excess limit case is useful only if all of the foreign income would not have been distributed. If all high-tax income is distributed, any savings in foreign tax are simply offset by lower foreign tax credits in the United States.

If the parent is in excess credit, the value of shifting income out of the United States to a low-tax country increases only to the extent of the elimination of any residual tax on eventual dividends. The value of shifting income *out* of a high-tax foreign country *to* the United States depends on whether the higher payment by the foreign affiliate to its parent is foreign or U.S. source. If it is U.S. source—for example, a payment for U.S. services—the benefit of shifting from a foreign country to the United States is simply  $t_F - t_{US}$  where  $t_F$  is the foreign statutory tax rate and  $t_{US}$  is the U.S. tax rate. Any subsequent repatriations of foreign income are irrelevant because they neither trigger U.S. tax nor generate useful excess credits.

However, increased royalties, which are foreign source, could become much more profitable when the parent is in excess credit. When the parent company did not have excess credits, the value of an extra royalty paid by a foreign affiliate depended on the difference between the foreign statutory tax rate, at which the royalty is deducted, and the domestic tax rate, at which it is included in income. Furthermore, even that margin of benefit for paying royalties from a high-tax country would disappear if the income was distributed as a dividend and produced excess credits. If the parent is now in excess credit, the benefits of an increased royalty payment is fully the saving in foreign tax (less any withholding tax, which is typically small), because the royalty, being foreign source, would be exempt from U.S. tax. The U.S. tax rate on the royalty is lowered not to 34 percent but, effectively, to 0.

The benefits of shifting debt from the United States abroad and from high-tax to low-tax countries can be summarized briefly. Reallocating debt within the worldwide corporation is one way in which net income can be shifted, but interest allocations to foreign income by the parent add a further consideration. If the parent has to make interest allocations, it has the added bonus of shifting debt abroad if it is in excess credit because parent interest expense is not fully deductible against U.S. tax. (See Altshuler and



Mintz 1995.) Thus, TRA 1986 may have increased the incentive to shift debt abroad.

To summarize, for firms that move to an excess credit position due to TRA 1986, the incentive to shift income from high- to low-tax jurisdictions may not be greatly altered; the incentive to shift income into the United States is greatly enhanced if the payment is foreign source (e.g., a royalty); and the incentive to shift debt from the United States is increased.

### 5.2.2 Globalization

A company's strategy for shifting income and using tax-saving strategies is a function of (1) the differing tax rates in the countries in which they operate, (2) the opportunities for implementing tax-saving strategies provided by their operations, and, (3) the antiabuse and penalty provisions that governments can use to thwart various tax-planning devices. The previous section outlined how TRA 1986 changed the benefits of various tax-minimizing strategies for a given set of international tax systems.

Commentators who stress globalization presumably emphasize the second factor. Multinational operations around the world, it is said, are now more closely linked, providing greater opportunities to reduce taxes. In fact, the evidence does not point to the growing importance of intrafirm trade. A recent report by the U.S. Department of Commerce, examining transactions from 1977 through 1994, concludes that "The shares of intrafirm trade in U.S. exports and imports of goods have changed very little" (U.S. Department of Commerce 1997a). Also, intrafirm trade has not increased as a percentage of foreign affiliates' total trade. Another Department of Commerce study found that the real gross product of U.S. manufacturing affiliates grew from 1982 to 1994 at about the rate of host-country industrial production over the period. In addition, the real product of U.S. manufacturing affiliates abroad increased less than the gross product of manufacturing industries in the United States (U.S. Department of Commerce 1997b).

Moreover, discussions of tax competition often downplay the third factor, the fact that governments can respond to companies' attempts to exploit differences in tax rates. Many have adopted CFC rules that subject interest, dividends, and royalties received to current home-country tax. (See OECD 1996.) For example, the United Kingdom's CFC legislation was enacted in 1984, partly in response to the abolition of exchange controls in 1979. The New Zealand CFC regime became effective in 1988 and the Australian legislation became effective in 1990. The U.S. subpart F rules go farther than most in that they subject related-party sales routed through a low-tax affiliate to current tax. However, some countries' CFC provisions even go so far as to eliminate tax deferral for all investment in low-tax countries. Many governments have implemented a new round of more stringent and explicit transfer pricing guidelines. In addition, some governments have attempted to reduce the opportunities for portfolio in-

vestors to accumulate passive income tax-free abroad by adopting rules similar to the passive foreign investment company (PFIC) legislation in the United States. The Australian and New Zealand FIF (foreign investment fund) regimes are examples.

### 5.3 Data Sources

The principal data source is made up of the linked corporate tax files of large (assets greater than \$250 million in 1984 and \$500 million in 1992) U.S. MNCs in 1984 and 1992. The files comprise Form 1120, the basic corporate tax return; Form 1118, on which foreign tax credits are claimed; and Form 5471, giving information on the sales, income, and assets of each CFC. Companies were included in the empirical work only if they filed corporate tax returns in each of the two years analyzed. (Firms might disappear from the file because of mergers and acquisitions, among other reasons.) In addition, each had to have filed either Form 5471 or Form 1118 in each year. (An MNC might not file Form 1118 in a given year if it had worldwide losses or could not claim a foreign tax credit for other reasons.) Parents whose principal business was finance were excluded because of their special nature and the particular tax rules (for insurance reserves, for example) that apply to them. Information on company R&D was taken from Standard & Poors Compustat Services.

The average effective tax rates used in the empirical work, either for a given CFC or for the country average, are based on the foreign taxes paid and net income reported on Form 5471. The net income measure is earnings and profits (E&P), which is defined in the Internal Revenue Code and is an attempt to approximate “true” net equity income. It is *not* local host-country taxable income, which can reflect various investment incentives. Finally, country statutory tax rates were taken from the Price Waterhouse guides for 1984 and 1992.

Hall-Jorgenson-King-Fullerton (HJKF) marginal effective tax rates are not available for the sixty-country sample used in the paper. Besides, the average effective tax rates used here have some advantages over HJKF rates, which usually reflect only a few basic features of business taxation—namely, the statutory tax rate, tax depreciation rates, and investment tax credits. The HJKF rates also overlook many important features of the tax system, such as the capitalization of expenses rules that were very important in TRA 1986. The HJKF marginal tax rates also do not capture special incentives offered to companies in “not fully transparent” systems, which may be important in the context of this paper.<sup>3</sup>

3. Chennels and Griffith (1997) have estimated HJKF rates for ten countries over the period. The country-by-country changes they report do not seem consistent with the changes we compute from the U.S. Department of the Treasury files.

**Table 5.1** Predictors of 1992 Credit Position (dependent variable is foreign tax rate on net repatriated income in 1992)

	(1)	(2)	(3)	(4)
Foreign tax rate on distributed income in 1984 <sup>a</sup>	.329 (4.76)			.304 (3.01)
(Limitation – foreign taxes)/parent assets		–.009 (4.64)		–.005 (2.08)
Computed average tax rate on foreign operations in 1984 <sup>b</sup>			.153 (.60)	.133 (.58)
Foreign tax rate on dividends in 1984				–.069 (.78)
Adjusted $R^2$	.125	.120	–.01	.184

Note:  $N = 152$ . Sample is large nonfinancial parents who claimed a foreign tax credit in both 1984 and 1992. Numbers in parentheses are  $t$ -values.

<sup>a</sup>Foreign tax rate on net distributed income is the ratio of total foreign taxes paid on distributed income to total net foreign distributed income. All calculations are for the “general” or “other” baskets only.

<sup>b</sup>This is calculated from all the income and foreign taxes paid as reported by foreign corporations controlled by the parent. It therefore includes the income (and associated taxes) that is not repatriated.

#### 5.4 The Persistence of Excess Credit Positions?

The discussion in the previous section of the relationship between excess credit positions and the incentives to reduce both total foreign taxes paid and foreign tax rates assumed that companies’ positions were completely predictable. Yet a company’s excess credit in any one year, 1984 for example, reflects its repatriation decisions in that year and may be subject to various transitory influences. This section, therefore, attempts to determine which measure derived from a company’s 1984 reports is the best predictor of the foreign tax rate on its repatriated income in the general basket in 1992. This may help us identify the companies whose incentives may have changed.

The dependent variable in table 5.1 is the foreign tax rate on repatriated income in 1992 in the general or “active” basket, which seems a convenient measure of the company’s 1992 credit status.<sup>4</sup> (Simply using a variable indicating whether the company is in excess credit yields similar results.) The subsample is made up of those companies in the original sample that claimed a foreign tax credit in both 1984 and 1992. The alternative predictors based on 1984 information were

1. The foreign tax rate on net distributed income in 1984.
2. The 1984 foreign tax rate on dividends only. This may be a better indicator of permanent excess credit status because it is less sensitive to yearly changes in the mix of foreign income.

4. The U.S. limitation on foreign tax credits is calculated for each type of “basket” of foreign income. The intent is to isolate active income, which tends to bear relatively high foreign taxes, from lightly taxed income, such as passive interest.

3. The difference between the tentative U.S. tax on the foreign income and total foreign tax paid, divided by total parent assets. This scaling is used to express the significance of any excess credit (or limit) level. If repatriations are small in any year, they may not be good indicators of future excess credit status.

4. The synthetic average tax rate on foreign activity computed from the location of each company's foreign capital and host-country tax rates. It is the potential average foreign tax rate on a company's foreign operations, regardless of whether the income is repatriated, and is computed from the location of its real assets abroad as reported by its CFCs in 1984 and the average effective tax rate in each location. The country average tax rate is used to filter out the noise in rates for specific companies in any year. Also, the CFC's own rate would not exist if it were making losses in that year.

Table 5.1 indicates that foreign tax credit status in 1984 and 1992 are correlated, although the persistence may not be quantitatively very impressive. The company's foreign tax rate on net distributed income in 1984, used in column (1), turns out to be the best predictor of the comparable tax rate in 1992. Column (2) indicates that the absolute deficit in credits in relation to parent size performs almost as well, and it is still significant in the last column when all measures are included in the regression. Column (3) shows that the measure intended to reflect permanent excess credit status unfortunately has little predictive power.<sup>5</sup> The foreign tax, or "gross up," rate on dividends added in column (4) also does not contribute much information. The straightforward overall foreign tax rate on repatriated net income seems to be more useful because it reflects all the various components of foreign income and is computed after all deductions to foreign income, which may be significant for some companies. (Even though some 1984 indicators did not seem useful in predicting the 1992 position, they will nevertheless be used as possible predictors of changes in behavior.)

## 5.5 Change in Country Tax Rates by Company

The question is: Why did some companies in a given location have larger declines in effective tax rates on net income than others? Is it because of expected foreign tax credits that may have affected their incentives for using tax planning devices or attempting to negotiate lower rates? Were some industries favored over others, as might be the case if countries are competing to attract more mobile industries? Or was it simply that companies with unusually high effective tax rates in 1984 had a tendency to return to the mean?

Accordingly, in this section, a parent U.S. company's operations in a

5. One reason may be that there isn't much variation in the measure across companies. The standard deviation in the computed foreign tax rate is only about 5 percent.

given country in 1984 are linked with its operations in 1992. In each year, all CFCs owned by a given parent in a location are first aggregated. Because the change in country tax rates is the focus, a company-country observation is used only if the company has CFCs in the country in both years. In addition, it has to be possible to compute a tax rate in each year, so E&P before tax must be positive in both years.

In table 5.2, each parent company-country combination for which data are available is a separate observation. The dependent variable is a company's effective tax rate (ETR) in the country in 1984 minus its effective tax rate in 1992—that is, the reduction of the tax rate in percentage points. A larger fall from 1984 to 1992 is, therefore, a larger positive number. The independent variables are (1) the change in the *average* effective tax rate in the country for all U.S. manufacturing affiliates, (2) the discrepancy between the company's 1984 effective tax rate and the country average in 1984, to capture the possibility of a tendency to return to the country average, (3) a dummy variable for parents in electronics and computers, and (4) various measures of the company's actual or potential excess credit status in 1984. Electronics and computer companies are chosen because they seem to be very responsive to local tax rates (see Grubert and Mutti 1997).

Table 5.2 indicates that a higher parent overall foreign tax rate in 1984 is associated with a *smaller* decline in the company's tax rate in a country compared to the average country decline, not a higher one as the increased incentives for planning by companies in an excess credit position might lead one to expect. In column (1), the third independent variable (the parent's overall foreign tax rate on repatriated income in 1984) tests the hypotheses on which companies had the largest reductions in foreign tax burdens. It has a significant *negative* coefficient, so that companies with higher overall foreign taxes in 1984 obtained smaller declines in foreign tax burdens. The first independent variable (the average change in the effective tax rate on manufacturing in the country) shows that, not surprisingly, it is an important determinant of the change in the company's tax rate. The second independent variable (the difference between a company's tax rate in the country in 1984 and the country average) indicates a strong regression to the mean. Finally, the coefficient for the electronics and computers dummy is negative and smaller than its standard error, indicating that the industries that appear to be mobile did not receive unusually large reductions in their tax burdens.

The succeeding columns, which use alternative measures of the parent company's excess credit status in 1984, present a picture similar to that in the first column. Column (2) recognizes that companies with permanently very high foreign tax rates in 1984 already had a strong incentive to reduce the burdens of their foreign taxes because they were in excess credit even at a U.S. rate of 46 percent. The foreign tax rate on repatriated income is divided into three intervals, a rate higher than 0.46, a rate between 0.46

**Table 5.2** Which Companies Obtained the Largest Tax Reductions? Change in Company Country Effective Tax Rates

Independent Variables	Dependent Variable: ETR 1984 – ETR 1992				
	(1)	(2)	(3)	(4)	(5)
Change in country average effective tax rate in manufacturing	.824 (16.71)	.823 (16.98)	.826 (16.70)	.819 (16.50)	1.16 (10.31)
Company rate in 1984 – average country rate in 1984	.874 (35.94)	.875 (35.88)	.880 (35.69)	.869 (35.56)	.874 (35.95)
Parent foreign tax rate on distributed income in 1984 <sup>a</sup>	-.128 (3.63)				
Electronics and computers	-.011 (.85)	-.088 (.60)			
Rate on repatriated income > .46		-.042 (3.52)			
Rate on distributed income .46-.34		-.020 (1.57)			
Foreign tax rate on dividends in 1984			-.107 (2.80)		
Computed average tax rate on foreign operations in 1984 <sup>a</sup>				.051 (.59)	
Tax rate on distributed income * change in country average					-.833 (3.40)
Adjusted R <sup>2</sup>	.543	.542	.541	.538	.543

Note:  $N = 1,154$ . ETR = effective tax rate. All of an MNC's CFCs in a country are aggregated. Observations are used only if company has CFCs in a given location in both years. Each company-country combination is a separate observation. Country average effective tax rates are computed from total CFC earnings and foreign taxes paid in a location. Only CFCs with positive earnings are included in country average. Numbers in parentheses are  $t$ -values.

<sup>a</sup>Definition same as in table 5.1.

and 0.34, and a rate lower than 0.34. There is not much evidence of a nonlinear effect, and higher overall foreign tax rates in 1984 are still associated with smaller declines in the country for the company. Both columns (1) and (2) indicate that the average tax rate on repatriated income has a quantitatively large effect on country tax reductions. For example, the  $-0.128$  coefficient in column (1) means that a 1 standard deviation increase in the 1984 tax rate on distributed income resulted in a 1.8 percentage point reduction in the local tax rate.

Column (3) uses the 1984 foreign tax rate on dividends as the measure of excess credit positions. It also has a significant negative, not positive, coefficient, which is consistent with the results in the first two columns. In column (4), the computed measure of the average foreign tax rate on foreign activity, based on the location of CFC assets and average tax rate in the country, again has little explanatory power. Column (5) interacts the

tax rate on repatriated income in 1984 with the change in country average tax rates on the grounds that planning might be most important when country tax rates are falling. The coefficient is negative again, indicating that companies with high overall foreign tax rates in 1984 obtained smaller reductions in effective tax rates.

These results support the interpretation that parent companies are not born high-tax or low-tax, nor are they randomly assigned to high- or low-tax countries. A low parent average tax rate in 1984 presumably indicates that the parent had mobile activities or was engaged in aggressive tax planning. These were the companies that enjoyed larger than average declines in foreign tax rates in the countries in which they were located. Their larger than average reduction in foreign tax rates may indicate their continued aggressive tax planning; it may also indicate their ability to negotiate lower tax rates because of the potential mobility of their operations. Companies whose 1984 overall foreign tax rate would lead them to expect excess credits as a result of TRA 1986 were not the ones who lowered their foreign tax burdens the most.

## 5.6 Tax Rates at the CFC Level

This section examines CFC tax rates in 1984 and 1992 to see if country behavior has changed. For example, have governments made greater concessions to attract finance affiliates? The observations in this section and the next are on individual CFCs, in contrast to those of the previous section in which all of a parent's CFCs in a given location were aggregated. Some data of interest are CFC specific, such as business activity and date of incorporation. Furthermore, CFCs in 1984 and 1992 are not linked. Rather, we use parallel regressions for each year, although the sample is restricted only to parents on the corporate tax files in both years. It is also necessary that data on the parent's foreign tax credit status in 1984 be available. Finally, CFCs with less than \$10 million in assets are excluded because of the likely noise in small operations. Also, larger CFCs tend to receive more careful editing when the data file is assembled.

Before proceeding to the parallel regressions for tax rates in 1984 and 1992 in this section, and to debt and income shifting in the next section, it might be appropriate to consider what a change in behavior means. For example, what if finance affiliates retain the same 5 percentage point tax advantage over manufacturing affiliates? The average tax rate on manufacturing fell substantially, but is a finance affiliate's increased *relative* advantage important? Does it indicate that countries are competing more aggressively for finance companies? Companies are presumably interested in the after-tax rate of return in a given location. A reduction of 5 percentage points will have the same absolute effect on after-tax rates of return whatever the initial level of tax rates. This absolute change may be relevant if a

location has to overcome a certain absolute cost disadvantage. Furthermore, if tax rates fall generally in all countries, a 5 percentage point advantage for finance will result in a smaller percentage advantage in after-tax rates of return for finance than it did when tax rates were higher. In any case, the attractive power of a 5 percentage point discount has not increased.

However, when we come to income shifting in the next section, relative comparisons may be in order. We will see that, consistent with earlier studies, income tends to be shifted to locations with low statutory tax rates. Average rates of return abroad may, however, change over time, and in that case it might be appropriate to assume that, with unchanged incentives and opportunities, a given percentage point difference in statutory tax rates would result in the same amount of relative income shifting in the two years, because tax officials' responses might be guided by relative differences in return. If the probability of penalties depends on relative differences in returns and the amount of the penalty is proportional to the current return, a given difference in statutory tax rates would seem to result in a given amount of relative income shifting over time.

Table 5.3 reports on the parallel regressions for CFCs' effective foreign tax rates in 1984 and 1992. The effective tax rate is again defined as the ratio of foreign tax paid to E&P, the measure of net equity income. The independent variables are the country average effective tax rate in manufacturing, two age categories based on the CFCs' dates of incorporation, and a dummy variable for CFCs in finance. (Note that only nonfinancial parents are in our sample, but they may have finance CFCs for various reasons.)

The 1984 regression in the first row of table 5.3 indicates that CFCs incorporated relatively recently have significantly lower tax rates than the country average. Investment incentives such as accelerated depreciation and tax holidays tend to benefit recently incorporated companies. Finance affiliates have a tax rate more than 6 percentage points lower, holding the country effective tax rate on manufacturing constant.

The second row shows that the regression for CFC tax rates in 1992 is virtually identical to the 1984 regression. Recently incorporated companies get about the same benefits as in 1984. The tax advantage obtained by finance subsidiaries is about the same. The last row of table 5.3 includes the parent's foreign tax rate on repatriated income in 1984. The coefficient is consistent with the finding in the previous section that companies with high overall foreign tax rates in 1984 did not obtain greater country reductions in tax rates by 1992.

Greater tax competition by governments is not apparent in this CFC-level data. Newly incorporated companies did not receive greater tax concessions in 1992 than they did in 1984. Operations that appear to be highly mobile, such as finance, always have lower tax rates than the average, but this differential does not seem to be much larger in 1992 than in 1984.



**Table 5.3** Did Governments Increase Concessions to New and Mobile Operations? CFC Effective Tax Rates in 1984 and 1992

Year	Country Average ETR in 1984 Manufacturing	Country Average ETR in 1992 Manufacturing	Age < 5 Years	Age 5–15 Years	Finance	Parent Foreign Tax Rate on Repatriated Income in 1984	Adjusted $R^2$
1984	.694 (17.08)		-.050 (2.70)	-.045 (3.75)	-.062 (2.84)		
1992		.668 (17.12)	-.054 (3.89)	-.040 (3.98)	-.077 (4.31)		.177
1992		.664 (17.04)	-.052 (3.71)	-.038 (3.77)	-.075 (4.22)	.092 (3.01)	.139 .142

*Note:* Dependent variable is foreign tax/earning and profits for CFC.  $N = 1,854$  CFCs in 1984,  $N = 2,334$  CFCs in 1992. Each CFC is a separate observation. Unlike in table 5.2, all of a parent's CFCs in a country are not aggregated, and 1984 and 1992 are not linked. Only CFCs with positive earnings are used. CFCs with assets less than \$10 million are excluded. Numbers in parentheses are  $t$ -values.

## 5.7 Have Income Shifting and the Allocation of Debt Become More Sensitive to Taxes?

Table 5.4 moves on to the analysis of income shifting from high-tax to low-tax countries. The incentives, on the margin, to shift income into or out of a jurisdiction depend on its statutory tax rate. However, there is an issue as to what measure of income—pretax profits or after-tax profits—is the best indicator of the extent of income shifting. Pretax profits seem to be the most reliable, robust measure because there may be market forces that tend to equate pretax rates of return. For example, the Samuelson-Lerner theorem on factor price equalization is in terms of pretax factor returns. If there is a tendency for the equalization of pretax rates of return, then a comparison of *after-tax* returns will automatically find lower profits in high-tax countries without any income shifting.

Accordingly, table 5.4 uses the ratio of pretax profits to total assets as the profitability measure. (We will note the results for after-tax returns after the discussion of table 5.4.) Columns (1) and (3) have parallel regressions for 1984 and 1992 pretax income with the relevant year's statutory tax rate, the age dummies, and the finance dummy as independent variables. The statutory tax rate coefficient is negative in each case and statistically significant. The 1992 coefficient is almost twice the 1984 coefficient in absolute value and the mean return is lower in 1992, suggesting both a relative and an absolute increase in income shifting for a given statutory tax rate differential.

Columns (2) and (5), which add the effective tax rate as well as the statutory tax rate to the 1984 and 1992 regressions, indicate that the role of the effective tax rate (or the information it provides) also seems to have changed. In 1984, a higher effective tax rate increased pretax profits, holding the statutory tax rate constant. This might be expected in that a higher local effective tax rate raises pretax profits for all firms apart from any impact of income shifting. In 1992, however, the effective tax rate in column (5) has a negative coefficient. Indeed, in column (6), when the effective tax rate is used alone as the exclusive tax variable, its coefficient is very close to the statutory tax rate coefficient in size and significance. (In contrast, the comparable effective tax rate coefficient for 1984, not shown in the table, is small and statistically insignificant.)

This change in the role of the local effective tax rate in income shifting may be attributable to the changing behavior of countries and companies. One possibility is that some host countries grant companies special statutory tax rates, in the form of tax holidays and the like, that are not apparent in published descriptions of their tax regimes. These kinds of concessions, however, would be reflected in the effective tax rate reported by CFCs in that location. Another possibility is that companies lower their applicable statutory tax rates on their own through tax planning. This

**Table 5.4 Is More Income Being Shifted to Low-Tax Locations?**

Year	1984 (1)	1984 (2)	1992 (3)	1992 (4)	1992 (5)	1992 (6)
1984 statutory tax rate	-.086 (3.10)	-.156 (3.64)				
1992 statutory tax rate			-.166 (6.23)	-.176 (4.82)	-.123 (3.01)	
1984 average effective tax rate		.104 (2.14)				
1992 average effective tax rate					-.067 (1.39)	-.112 (5.30)
Age < 5 years	-.018 (1.31)	-.016 (1.18)	-.051 (5.08)	-.051 (5.04)	-.052 (5.10)	-.060 (6.09)
Age 5-15 years	-.004 (.46)	-.003 (.34)	-.020 (2.52)	-.020 (2.50)	-.020 (2.54)	-.020 (2.58)
Finance	-.070 (3.95)	-.068 (3.83)	-.045 (3.05)	-.045 (3.05)	-.046 (3.09)	-.039 (2.75)
Parent foreign tax rate on repatriated income in 1984 statutory tax rate				.025 (.40)		
Mean of dependent variable	.123	.123	.109	.109	.109	.109

*Note:* Dependent variable is the ratio of pretax profits to total assets.  $N = 2,157$  in 1984.  $N = 3,210$  in 1992. Includes all CFCs of nonfinancial parents, including those with losses. Numbers in parentheses are  $t$ -values.

might be the case if they use hybrid companies (to be described in more detail shortly), in which a CFC in a high-tax location owns a tax-haven downstream operation that is a corporation from the high-tax host country's point of view, but is a branch—and therefore consolidated with its upstream owner—from the U.S. tax system's point of view. The CFC and its tax haven operation, to which the CFC can shift income untaxed by the high-tax country would appear as a single CFC in our data.

Column (4) of table 5.4 interacts the country statutory tax rate with the parent's 1984 overall foreign tax rate. High-tax companies in 1984 would have had the greatest incentive to shift income out of high-tax countries because of the greater likelihood that they would be in excess credit. The variable, however, has no explanatory power. The parent's current 1992 excess credit status, not shown in the table, also has no explanatory power.

Regressions (not shown) in which the ratio of *after-tax* income to assets is used as the profitability measure show that, in these as well, the 1992 coefficient for the statutory tax rate is much larger in absolute value than the 1984 coefficient:  $-0.187$  versus  $-0.115$ . Here, however, the results are somewhat more difficult to interpret because average after-tax returns were higher in 1992 than in 1984, and some increase in the amount of income shifting for a given statutory tax rate differential might have been expected.

Turning to the allocation of debt in the MNC, table 5.5 has parallel regressions for CFC debt in 1984 and 1992. The principal incentive to allocate enterprise debt is indicated again by the country statutory tax rate. (Some shifting of debt may contribute to the income shifting in table 5.4 because profitability is expressed in relation to total assets, not to equity.) As expected, CFCs in high statutory tax countries have much more debt in both 1984 and 1992. The mean level of debt abroad is higher in 1992, which might be expected from the incentives to shift debt abroad created by the interest allocation rules, but the coefficient for the statutory tax rate in 1992 is virtually the same as in 1984. As before, the parents' 1984 credit status in the third row has no explanatory power for 1992 debt.<sup>6</sup>

The analysis of pretax rates of return in this section seems to indicate that companies engaged in greater income shifting from high-tax to low-tax countries in 1992 than they did in 1984. Globalization may have increased the opportunities for, and lowered the costs of, shifting income to low-tax locations. It is difficult to detect any evidence that expected excess credits played a role.<sup>7</sup>

6. The 1992 coefficient for the statutory tax rate is very close to the coefficient reported by Altshuler and Grubert (1997) in an equation with other tax variables, such as the withholding tax rate on interest.

7. If, as Grubert, Randolph, and Rousslang (1996) report, companies' excess credit positions have in general returned to their 1984 level, their marginal incentive for income shifting would remain the same; but if income shifting had contributed to this elimination of prospective excess credits, one should nevertheless see proportionately greater income in low-tax countries compared to the distribution of income in 1984.

**Table 5.5 Is More Debt Being Placed in High Tax Subsidiaries? Regressions for CFC Debt in 1984 and 1992**

Year	Statutory Tax Rate in 1984	Statutory Tax Rate in 1992	Age < 5 Years	Age 5-15 Years	Finance	Parent Foreign Tax Rate on Repatriated Income * Statutory Tax Rate	Mean of Dependent Variable
1984	.378 (10.11)		.091 (4.77)	.028 (2.25)	.060 (2.52)		.501
1992		.388 (10.78)	.056 (4.02)	.020 (1.85)	.061 (3.09)		.556
1992		.397 (7.97)	.056 (4.00)	.020 (1.84)	.061 (3.08)	-.023 (.27)	.556

*Note:* Dependent variable is ratio of debt to total assets.  $N = 2,503$  in 1984.  $N = 3,048$  in 1992. Debt includes all liabilities, including accounts payable. Numbers in parentheses are  $t$ -values.

**Table 5.6** Did Expectations about Excess Credits Affect Royalty Payments?  
The Change in the Ratio of Royalties to Sales from 1984 to 1992  
(parent level)

	(1)	(2)
R&D/sales in 1984	.1152 (4.03)	.0002 (.01)
Foreign tax rate on repatriated income in 1984	.0042 (.78)	
Foreign tax rate * R&D		.316 (2.12)
Adjusted $R^2$	.054	.069
Mean of dependent variable	.0054	.0054

Note:  $N = 256$ . Numbers in parentheses are  $t$ -values.

### 5.8 The Shift to Royalties and Excess Credit Positions

Grubert, Randolph, and Rousslang (1996) noted that one contributor to the reduction in the foreign tax rate on distributed income in 1992 was the shift from dividends to royalties. The previous discussion showed the potentially large benefits from switching to royalties if the parent is in an excess credit position; this section indicates that the shift to royalties is one area in which expectations of excess credits seem to have been significant.

Table 5.6 presents regressions for the changing importance of royalties to the parent company from 1984 to 1992. In each year, royalties received by the parent, which tend to be mainly foreign, are first scaled by dividing by the parent's sales. The dependent variable is the change in this ratio of royalties to sales from 1984 to 1992.

In the first regression, the independent variables are the parent's R&D as a percentage of sales in 1984 and the indicator of its future credit position, its foreign tax rate on repatriated income in 1984. Research and development has a positive and significant effect but the coefficient for the 1984 foreign tax rate is not significant. In the second regression, when the 1984 foreign tax rate is interacted with R&D, the interaction term is significant and the coefficient of the R&D term by itself virtually disappears. The equation also has more explanatory power. Companies that performed more R&D had a greater opportunity to increase royalties, and, of these, the ones that would have expected to have greater excess credits took advantage of the opportunity.

### 5.9 Changes in Tax Rates by Country: Who Cut Their Tax Rates the Most?

This section moves from the firm-level data and reviews the changes in effective and statutory tax rates in sixty countries from 1984 to 1992. As

**Table 5.7 Tax Rates in 1984 and 1994: Manufacturing (sixty countries)**

	Average Effective Rate		Statutory Tax Rate	
	Mean	Standard Deviation	Mean	Standard Deviation
1984	.329	.141	.412	.146
1992	.230	.114	.334	.121
1984 minus 1992	.100	.113	.077	.083

*Note:* Effective tax rates are total foreign tax paid divided by total pretax E&P in a location. Only CFCs with positive earnings are included in totals.

described earlier, the effective tax rates are based on information returns filed by U.S. CFCs. The effective rates apply to manufacturing CFCs only, and where there is a specific statutory tax rate for manufacturing, it is the one that is used.

Table 5.7 gives the mean effective and statutory tax rates in the sixty-country sample in 1984 and 1992. Consistent with Grubert, Randolph, and Rousslang (1996), the table shows that the mean average effective tax rate fell by almost 10 percentage points between 1984 and 1992. However, there was no notable convergence in tax rates; the standard deviation in effective rates fell only modestly and increased in relation to the mean. (In fact, the standard deviation of the effective tax rates in 1980, not shown on the table, was virtually the same as in 1992 even though the mean was more than 8 percentage points higher.) The last row of the table indicates that there was a wide diversity in tax changes from 1984 to 1992. Table 5.7 also shows that statutory tax rates fell substantially, but by less than effective rates did. There was also no convergence of statutory rates. The diversity in behavior among countries may indicate that the system has not yet settled down to a new equilibrium. The regressions in the next table do indicate that, not surprisingly, high-tax countries tended to cut their tax rates the most. Still, a greater convergence of tax rates would be a more convincing sign of increased tax competition.

Table 5.8 presents simple regressions for the changes in effective and statutory tax rates. (The variables are the 1984 rate minus the 1992 rate, so a reduction is positive.) In the first regression, the dependent variables are the effective tax rate in 1984 and the regional dummies. As already noted, the high-tax countries in 1984 lowered their effective tax rates the most<sup>8</sup>—but these tax reductions may have been for purely domestic reasons. Does the pattern suggest tax competition? The regional dummies show that, if anything, taxes fell less in the EEC than the average even though one might expect that the integration of the European economies

8. There was no disproportionate reduction at the high end. When a squared 1984 effective tax rate term is introduced (not shown on the table), it is not close to being significant.

**Table 5.8 Which Countries Cut Their Taxes on U.S. Businesses the Most? Change in Tax Rate Regressions (sixty countries)**

Independent Variable	Dependent Variable					
	(1)	(2)	(3)	(4)	(5)	(6)
	Change in Effective Tax Rate (1984 ETR – 1992 ETR)			Change in Statutory Tax Rate (1984 STR – 1992 STR)		
Effective tax rates in 1984	.48 (5.43)	.52 (6.61)				
EEC	-.021 (.65)				-.015 (.59)	
Latin America	.024 (.78)				.033 (1.37)	
Asia	-.06 (1.75)				-.021 (.82)	
Change in statutory rates			.54 (3.32)	.90 (6.20)		
Statutory effective tax rate in 1984 – effective tax rate in 1984				-.66 (5.75)		.19 (2.11)
Statutory tax rate in 1984					.35 (5.38)	.26 (3.89)
Population less than 15 million		.063 (2.83)				
Open trade regime		.074 (2.29)				
GDP per capita less than \$4,000		.085 (2.67)				
Constant term	-.048 (1.17)	-.193 (4.25)	.058 (3.12)	.084 (5.41)	-.068 (2.05)	-.045 (1.69)
Adjusted R <sup>2</sup>	.41	.48	.15	.45	.32	.33

Note: Numbers in parentheses are *t*-values.



would encourage tax competition. (Regional effects are also weak in the statutory tax rate regression in column [5].)

The second regression, however, indicates that effective tax rates fell much more in small, open, poor economies (see Grubert and Mutti 1997 for the measure of openness).<sup>9</sup> The small countries may be the ones that feel that greatest impact of more mobile capital flows. Countries with open regimes are the ones that would be engaged in tax competition. Investments in low-income countries with relatively cheap, unskilled labor may be the kind that is most sensitive to cost differentials. Low-income countries may also be most susceptible to tax planning or demands for concessions by MNCs. This second regression reveals a pattern that strongly suggests an international motivation for corporate tax reductions.

The third regression examines the correlation between changes in statutory tax rates and effective tax rates. If changes in effective tax rates on U.S. companies are completely explained by changes in local statutory tax rates, no room would be left for special concessions to MNCs or MNC tax planning. Column (3) in table 5.8 indicates that the change in effective tax rates is correlated with the change in local statutory tax rates, but the correlation is not very high. However, the addition of the 1984 discrepancy between the statutory tax rate and the effective tax rate in column (4) greatly increases the explanatory power of the change in statutory tax rates. One reason for adding the statutory versus effective rate discrepancy is that it may capture noise in the 1984 effective tax rate. A temporarily low effective tax rate in 1984 would be associated with a smaller fall in observed effective tax rates from 1984 to 1992 for any change in statutory rates. Another interpretation is that a large discrepancy between statutory and effective tax rates creates the conditions for “base broadening,” in which statutory tax rates are lowered but average effective rates are not. In any case, the coefficient close to 1 for the change in statutory tax rates in column (4) suggests that governments were an important source of the observed reduction in effective tax rates. Nevertheless, the large positive constant term leaves open the possibility of a substantial contribution by company planning or special concessions to MNCs.<sup>10</sup>

The base-broadening interpretation for the statutory-effective rate difference receives some support in the regression for the change in statutory tax rates in the last column. The 1984 discrepancy between statutory and effective tax rates has a significant positive coefficient. For any given initial statutory tax rate, a country with an effective tax rate that is much

9. Grubert and Mutti (1997) use four categories of international restrictions, or the absence thereof, based on World Bank listings. The two categories with the lowest restrictions are in the open category in table 5.8.

10. This possibility is consistent with a change in statutory tax regression (not shown) in which two of the variables that were significant in explaining changes in effective tax rates in column (2), for open and poor countries, are *not* significant for statutory rates.

lower than its statutory tax rate decreased its statutory rate by a greater amount so that it could be more in line with its effective rate.

As noted in the introduction, the increased tax sensitivity of investment found by Altshuler, Grubert, and Newlon (chap. 1, this volume) seems generally consistent with the large mean decline in effective tax rates under the assumption that host governments simply maximize revenue from inbound U.S. investment. This is presented only as an illustrative exercise, and it raises the question as to why all governments do not converge on the mean. Presumably different governments weigh considerations other than revenue from U.S. companies differently. Some, for example, may put greater emphasis on the external benefits of inbound investment, whereas others may be concerned about revenue losses from their domestic corporate sector.

Some of the results in this section do suggest increased tax competition. The large drop in average tax rates is consistent with the increased mobility of capital. The small, open, low-income economies that might be expected to gain the most from lower tax rates did cut their taxes the most. Still, there was no convergence of tax rates and other signs of tax competition that might have been expected did not materialize. For example, effective tax rates in the EEC did not fall more than the average even though tax competition might be expected to be intense in this group of homogeneous integrated economies.

### **5.10 Tax Haven Income and the Antiabuse Rules**

Countries can defend themselves against some attempts to move their tax bases offshore. In particular, the subpart F rules in the Internal Revenue Code subject interest, dividends, royalties, and other investment income received by controlled foreign corporations in the United States to current U.S. tax. In addition to eliminating deferral for passive income, the subpart F rules also tax income from the sales routed through a CFC for ultimate consumption in a third country. The current U.S. tax on passive and foreign base sales income acts as a backstop to the transfer pricing rules.

These antiabuse rules would appear to eliminate the benefits of using a low-tax country unless the source of the income is from manufacturing located there or from goods and services provided to the local population. But how effective are the antiabuse rules? As a test, we can see how much CFC income in low-tax countries with very tiny populations and virtually no manufacturing is actually subject to current U.S. tax. Take some low-tax countries in the Caribbean as an example. Controlled foreign corporations incorporated in the three most popular locations in the Caribbean report that currently-taxed subpart F income in 1992 was less than 50 percent of their total after-tax E&P in 1992. Apparently, the subpart F rules are not fully effective in achieving their objectives.

The evidence suggests that U.S. companies are using “hybrids” in these locations—that is, the low-tax CFC has an entity in another, high-tax, country that is a branch according to U.S. law but an incorporated subsidiary under the high-tax country’s law. The high-tax entity can, therefore, pay royalties and interest to the low-tax CFCs that are deductible in the high-tax country but are not subject to current U.S. tax. The CFC and its branch are regarded as one consolidated corporation from the U.S. point of view. That these branches are being used is suggested by the fact that the Caribbean CFCs report paying tax equal to 11 percent of pretax income, which is much more than they could conceivably be paying to the countries in which they are incorporated.

### 5.11 Summary and Conclusions

There are some signs that governments and companies have responded to the integrating world. Small, open, and low-income countries have cut their effective tax rates on corporations the most. They might be expected to be the ones that are most affected by increased capital mobility. Companies with a low overall foreign tax rate on repatriated income in 1984 were able to achieve larger than average tax cuts in the countries in which they were operating. This may reflect their increased bargaining power because they are more mobile or because they have increased opportunities to exploit their skills at tax planning. More income is being shifted to low-tax locations.

Much of the evidence, however, points to stability. The sensitivity of the location of company debt in response to local statutory tax rates has not changed. Governments have not given greater inducements to new investors, nor to mobile businesses such as finance. Tax rates did not fall by a greater amount in homogeneous free-trade areas, such as the EEC, and there was little convergence of effective or statutory tax rates.

If there is a new international environment, both governments and tax payers can respond. Governments can respond by lowering their tax rates, but they can also respond by making resident companies less susceptible to the attraction of low tax rates. More stringent CFC rules and more comprehensive transfer pricing guidelines are two examples. If the opportunities and incentives for tax-minimizing strategies have increased, these may have been largely offset by changes in government policies.

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## Comment      Joel Slemrod

In this paper Harry Grubert assembles a wide range of evidence that sheds light on the important changes in U.S. foreign direct investment (FDI) since 1984. This evidence speaks to one of the most important public finance issues of the twenty-first century—the impact of globalization on the ability of countries to effectively tax the income of corporations and capital income more generally. A strength of the paper—that it is wide ranging—is also the source of its weakness—that it is a bit unfocused. A more descriptive title should really be something like: “Some Facts That May or May Not be Related to How the Tax Environment of U.S. Multinational Companies Changed Between 1984 and 1992.” In the absence of a set of testable hypotheses derived from a structural model, or any model, the language of the paper is necessarily very guarded. There are many, many phrases such as “probably suggests,” “may reflect,” “may have been largely offset,” and so on. In spite of this limitation, the paper offers a

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feast of fascinating trends and relationships that are worth chewing on and trying to digest. No one working in this field could fail to be stimulated by it.

A recurring methodological issue is that, over the period under consideration, two things happened: a general globalization of economic affairs, and the passage of the Tax Reform Act of 1986 (TRA 1986). Do the changes we observe between 1984 and 1992 reflect the first, or the second, or a little of both? Would international business experts ignore TRA 1986, and interpret all changes as evidence of globalization? We know that most tax folks look at what happened over this period and presume that it's all due to TRA 1986. This question is reminiscent of the debate over the so-called difference-in-differences approach used to examine the responsiveness of high-income individuals to the tax cut in TRA 1986, and the tax increase of 1993. Is it really acceptable to ignore nontax changes occurring over this period? How can we reliably disentangle the two? How can we hope to do it without a model?

One of the important contributions of this paper is its marshaling of provocative facts. Here's one: The average foreign tax rate of U.S. multinational corporations (MNCs) fell from 36 percent in 1984 to 25 percent in 1992, a truly startling decline. Was this due to increased tax competition among governments, or increased tax planning by the corporations (maybe due to TRA 1986), or a little of both?

Table 5.8 in the paper suggests that the decline in countries' statutory rates could explain as much as four-fifths of the story; but it only suggests that. One problem is that the tax averages are, as far as I can tell, simple averages of all sixty host countries. Surely it would be informative to look at a weighted average. In fact, why not do the following? Start with the 1984 data on the pattern of U.S. MNC investments abroad. Then presume that, for each host country, the percentage reduction in average rates is equal to that of the statutory rate. Assume no behavioral change. How close does that get you to the pattern of company-by-company average tax rates (ATRs) observed in 1992? Alternatively, one could assign the country-wide average changes in ATR to each firm, assume no behavioral response, and examine what kinds of firms differ from that pattern. What I'm seeking is a better way to distinguish the "countries changed, firms were passive" story from "U.S. tax law changed, companies reacted" story.

Table 5.8 also reveals that the standard deviation of both the average tax rates and the statutory rates fell. (Wouldn't some kind of weighting be appropriate here, too?) Grubert concludes that the drop is not particularly large, and does not suggest intense competition for tax bases. To evaluate this claim, it would be very helpful to bring in some theoretical structure. A good start would be Roger Gordon and Jeffrey MacKie-Mason's (1995) theory that open economies would like to have no distorting source-based taxes, but to pay a cost in domestic income shifting if their corporate rate

diverges too much from the rate on labor income. This raises the question of whether corporate statutory rates have moved in tandem with individual rates.

Table 5.9 goes beyond country averages to simple regressions explaining changes in tax rates. The regressions provide strong evidence of “regression toward the mean.” For example, other things being equal, if a country had a tax rate of 0.5 in 1984, it would be 0.44 in 1992; if it was 0.2 in 1984, it would be 0.28 by 1992. This seems to me to be evidence of competition. However, the fact that there were lower reductions in the European Economic Community (EEC), for given 1984 tax rates, makes Grubert skeptical of the tax competition explanation, given that the pace of economic integration in Europe probably exceeded the pace elsewhere. In the absence of a model, however, it’s not obvious why one should focus on this piece of evidence or another. Another bit of suggestive evidence is that governments lowered their statutory rates when they were far out of line with their effective rates. These facts are stimulating but, to my taste, less valuable than if they followed a careful discussion of exactly what would and what would not be evidence of tax competition, precisely defined.

The most fascinating aspect of this paper is the investigation of which MNCs’ average tax rates fell from 1984 to 1992. Grubert lays out two (not necessarily mutually exclusive) hypotheses: (1) that TRA 1986 put more companies into an excess foreign tax credit position, forcing them to take more notice of host-country taxes and to flee high-rate countries, and (2) that more mobile (and therefore low-tax) companies took more advantage of opportunities, so that already low-rate tax companies found ways to do even more effective tax planning. Table 5.2 shows that, company by company, the tax rates of those companies with low ATRs in 1984 went down more than the tax rates of companies with high ATRs in 1984. This reflects badly on the first explanation, but it is not clear that it is consistent with the second: Why hadn’t the “mobile” companies already taken full advantage of this mobility by 1984? One way to learn more about this question would be to hold constant the 1984 country tax rates in 1992, and look at the actual shift in company behavior—where the company is located, where income is earned. How close does that get us to the actual 1992 pattern of taxes paid?

I don’t have the space to comment on all the evidence this paper unearths, and all the analyses it provides. There are a series of fascinating questions posed, and a broad range of evidence presented. One pervasive puzzle remains, though. Why, if the tax elasticity of FDI is 3, as work by Altshuler, Grubert, and Newlon in this volume and by Hines and Rice (1994) suggests, are corporate tax collections as high as they are? To answer that question, one needs to model both the country and firm optimization problems. As I suggested previously, for the country problem, one must consider the interaction between the domestic and foreign tax situa-

tions. For the firm, one needs a model of the joint decisions of where to locate real operations and the income-shifting opportunities that the real operations offer.

In the absence of structural models of these decisions, empirical analysis inevitably will be unable to answer certain critical questions, such as (1) If a country wants to increase inward FDI, should it do so by lowering its statutory rate, or by offering investment tax credits? (I strongly suspect that, for a given average tax rate, or even marginal effective tax rate, these two policies will not have the same effect.) And (2) What will be the effect on revenue of alternative tax changes?

I don't mean to imply that constructing a structural model of firm and country decisions that considers both the real investment and income-shifting margins is an easy task. It will certainly be hampered by imperfect data and tenuous identification conditions. I do, nevertheless, believe it is the appropriate path for future research. Grubert and I have made a small step in this direction (Grubert and Slemrod 1998) by modeling how the tax system affects U.S. corporations' investment and income shifting to Puerto Rico. Creating a multicountry model will be a much more difficult task.

Estimating such a structural model is an ambitious agenda, to be sure, but is one for which Harry Grubert and his collaborators has paved the way with their painstaking and thoughtful analyses of the influence of taxes on MNC behavior. I expect that he and they will be in the forefront of the next wave of research that continues to sort out how taxes influence our world of apparently ever-increasing economic integration.

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