Volume Title: Geography and Ownership as Bases for Economic Accounting

Volume Author/Editor: Robert E. Baldwin, Robert E. Lipsey and J. David Richards, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-03572-7

Volume URL: http://www.nber.org/books/bald98-1

Publication Date: January 1998

Chapter Title: The Significance of International Tax Rules for Sourcing Income: The Relationship between Income Taxes and Trade Taxes

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Chapter URL: http://www.nber.org/chapters/c6823

Chapter pages in book: (p. 259 - 284)

8 The Significance of International Tax Rules for Sourcing Income: The Relationship between Income Taxes and Trade Taxes

John Mutti and Harry Grubert

As multinational corporations play a greater role in global economic activity, the incentives such firms face in choosing particular locations for production become important determinants of the geographic-based measures of output discussed elsewhere in this volume. International trade economists have long paid attention to the role of tariffs and other trade taxes on the pattern of trade and international investment. This paper assesses how rules for sourcing income in different locations affect parent income tax liabilities and correspondingly create incentives to export or to produce abroad.

From an early postwar perspective, income taxes were presumed to have little influence on the location of real output across countries: a general tax imposed on an internationally immobile resource was borne by that factor and represented a windfall loss that did not alter the pattern of production. In a world of increasingly mobile capital and labor, that perspective became less warranted. In the 1960s and 1970s academicians and policymakers tried to assess the influence of home- and host-country tax and tariff rates on the location of production, investment, and trade internationally (see Bergsten, Horst, and Moran 1978).

The current paper pursues a related but less obvious issue, the way that rules to determine the source of income for tax purposes also can have important effects on the form in which taxable income is reported and economic activity is located. In particular, two issues are evaluated in more detail: the ability to regard a portion of export income as foreign source (sales source rules) and the treatment of royalties received from abroad as foreign-source income. The potential benefits from these source rules have become particularly important

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The views expressed here do not necessarily represent those of the U.S. Treasury Department.

due to U.S. tax policy changes adopted in the 1980s and to the growing role of U.S. production and trade in goods that require intangible intellectual property.

The U.S. computer software industry provides good examples of the conflicting incentives that exist. Relatively similar transactions can be carried out as trade in goods, trade in services, or production by foreign affiliates. How a company chooses to structure these often substitutable transactions will depend on several policy measures: host-country tariffs on software imports, foreign income tax rates and the opportunity to deduct royalty payments from taxable income, foreign withholding rates on royalties, the way U.S. taxes are imposed on foreign-source income, and the U.S. income tax rate. The incentives created by these tax and trade provisions may result in fundamentally similar transactions being characterized quite differently when different industries and countries are involved.

This paper demonstrates several implications of rules that govern whether export income, service income, and royalties are regarded as domestic or foreign-source income, a determination relevant in calculating a firm's foreign tax credit position. The relative significance of these source rules is demonstrated in a set of stylized calculations that show how domestic and foreign policies affect a firm's after-tax returns under various assumptions about the importance of tangible and intangible capital in production. A brief section considers some related examples and issues that arise as a result of source rules applied in foreign countries, which also affect the incentives U.S. firms face.

The empirical significance of the incentives identified above is treated in the final section of the paper. Background information is provided with respect to two issues. First, because these incentives apply to active business income but not to passive income from portfolio investments, a general overview of U.S. income earned abroad is presented. It indicates that the focus on active income is not misplaced or directed at an inconsequential part of U.S. investment activity. Second, because the benefits from characterizing income as foreign source depend on a firm's ability to claim credit for foreign taxes paid, the foreign tax credit position of U.S. multinational corporations is briefly discussed. Finally, work that evaluates the response to these tax incentives is reviewed. While such tax benefits might result only in income shifting, with no effect on the location of economic activity, some evidence suggests that these provisions influence real economic activity as well.

8.1 Basic Approaches in Taxing Foreign-Source Income

The United States, together with Japan and the United Kingdom, applies a worldwide system that taxes all of the income its residents receive regardless of the source of that income across countries. To avoid double taxation of foreign-source income, the United States grants a credit for foreign income taxes paid, where the credit is limited to the amount of the U.S. tax liability on foreign income. The amount of foreign income to declare is defined by U.S. rules, not by foreign rules that determine the foreign tax actually paid.

U.S. law provides for an overall foreign tax credit limitation that does not distinguish by country of origin. The foreign tax paid on a dividend received from an active business in a high-tax country may offset the U.S. tax due on a dividend received from a low-tax country. The United States does, however, separate different types of income into different baskets. Interest income received from a tax haven country that imposes a low withholding tax cannot be combined with dividends received from a country that imposes a high income tax, which otherwise would shield the interest income from U.S. taxation.

Consider the following example that demonstrates the calculation of a U.S. multinational corporation's foreign tax credit limitation and total tax liability. Suppose a firm receives $1,000 of foreign-source income, has paid a foreign income tax of $385, and also has domestic-source income of $1,000. Given a U.S. income tax rate of 35 percent, the foreign tax credit limitation is $350, calculated as the U.S. tax liability on total income (.35 × $2,000) multiplied by the share of income that is foreign source (0.5). In this case the firm owes no residual U.S. tax on its foreign-source income, has excess foreign tax credits of $35, and pays U.S. tax of $350 on its domestic-source income. It pays total income taxes of $735.

If source rules allow the firm to characterize a larger share of its income as foreign source, the firm benefits by being able to claim a larger foreign tax credit, and it avoids U.S. taxation of that recharacterized income. For example, if the firm can treat an additional $100 as foreign-source rather than domestic-source income, the foreign tax credit limitation becomes $385. The firm now can claim all of the foreign tax paid as a credit against the U.S. tax liability on foreign-source income, and its U.S. liability on domestic-source income is $315. It pays total income taxes of $700, a decline of $35 compared to the previous example.

If the circumstances above are changed so that foreign income taxes paid are $285 rather than $385, then the foreign tax limitation remains $350, the foreign tax credit is $285, and the residual U.S. tax due is $65. Being able to characterize more income as foreign source provides no advantage because a residual tax will be due on any additional foreign-source income received by this firm, which is in an excess limit position. Therefore, whether a firm has excess foreign tax credits is a key factor in determining the effects of source rules under the U.S. system of taxing worldwide income.

8.2 U.S. Rules for Sourcing Income

The following discussion presents three alternative types of transactions that are economically similar but are treated differently under U.S. tax law. The three alternatives include the export of a good from the United States, the export of a service from the United States, and the transfer of technology to an affiliate who provides the good or service in the foreign market. An important part of the difference in tax treatment is attributable to rules that determine what part of the income earned is regarded as domestic source and what part

as foreign source. The computer software industry is used as a point of reference in the discussion because the three different types of transactions all represent plausible ways of selling software abroad. The different incentives identified, however, apply to other industries as well.

8.2.1 Exports of Goods

Begin by considering the exportation of a good from the United States. Suppose a U.S. company develops a new computer program in the United States and exports prepackaged software to foreign users. The profit it earns depends on the revenue received from the foreign buyer, Rev_f, the tariff rate that must be paid to import the good into the foreign market, τ, the variable cost of goods sold, Cost, and the U.S. income tax rate imposed on export earnings, t_x:

$$\Pi = (1 - t_x)[\text{Rev}_f/(1 + \tau) - \text{Cost}].$$

To apply this simple framework, assume initially that all capital is equity financed, and ignore the distinction between tangible and intangible assets.

The U.S. income tax rate may be lower than the rate imposed on domestic income if the firm takes advantage of the foreign sales corporation (FSC) provisions of the tax code. Under the combined taxable income administrative pricing rule, 15 percent of the corporation's taxable income from exports sold through the FSC is exempt from federal income tax. The exempt income is intended to reflect the FSC's activity abroad in selling the exported goods. An alternative approach, the gross receipts method, results in exempt income equal to about 1.19 percent of gross receipts. Because the benefit from this latter rule declines as the firm's profit margin increases, firms with profit margins greater than 8 percent will find the combined taxable income method more advantageous. In fact, that is the most commonly selected method, and it is particularly relevant for the high-technology examples considered here. In 1987 FSCs reported gross export receipts of $84.3 billion and net exempt income of $2.1 billion. The effective tax rate on U.S. export income, then, will be lower than the statutory corporate tax rate.

If the U.S. firm is in an excess foreign tax credit position, it may benefit even more under provisions of the sales source rules. These rules specify how firms are to determine the source of income (domestic or foreign) from the sale of inventory property. As shown above, if a firm that has excess credits can declare additional foreign-source income, it can claim a larger foreign tax credit and the additional foreign-source income escapes U.S. taxation.

If the exported goods are sold through an FSC and the combined taxable income method is used to determine FSC income, generally no more than 25 percent of the combined taxable income of the FSC and the U.S. exporter can be treated as foreign-source income. In combination with the FSC exemption, that would allow 40 percent of the firm's export income to escape U.S. taxation. If the goods are not sold through an FSC, however, the firm can often use rules to source 50 percent of the export profits abroad. Thus, firms are more likely

to forgo operating an FSC if they are in an excess credit position, since they will gain a larger benefit from the other provisions of the sales source rules.

The importance of the sales source rules is indicated by the U.S. Department of the Treasury (1992) calculation that U.S. firms' tax liabilities would rise $1.8 to $2.1 billion in their absence. A more recent estimate suggests a lower tax benefit, roughly half this size (Rousslang 1994). This latter calculation indicates that fewer firms actually claim 863(b) income on Form 1118 than would be predicted on the basis of firms in excess credit positions.

For those companies that do claim 863(b) income, the benefit from a lower U.S. tax rate on export earnings rewards U.S. production. This benefit will be more significant the larger the profit margin on goods exported. Conversely, a higher foreign tariff rate discourages U.S. production. In the case of computer software, tariffs on prepackaged software range from zero in many countries to 85 percent in India. The total value of U.S. merchandise exports reported in 1993 was $2.3 billion.[1]

8.2.2 Exports of Services

An alternative transaction to consider is the U.S. provision of a service to a foreign buyer. In the case of computer software, this item is reported by the Commerce Department as computer and data-processing services, and in 1993 total sales were $1.8 billion. Such a transaction might involve development of a program or analysis carried out in the United States, which is then delivered to the foreign customer. The profit the firm earns is represented by the revenue it receives from the foreign buyer, the cost of providing the service, and the U.S. tax rate:

$$\Pi = (1 - t_{us})[\text{Rev}_f - \text{Cost}].$$

Several factors distinguish this case from the exportation of a good. The delivery of a service is not ordinarily subject to a tariff. The treatment of the income earned by providing the service may be less favorable, however. The United States regards such services provided by domestic establishments as domestic-source income and subject to U.S. tax. Exports of software services do not qualify for FSC treatment,[2] although exports of master disks could benefit from the sales source rules in calculating the foreign tax credit. In general, the relevant U.S. tax rate for providing services will exceed the effective rate on income from exports of goods.

1. This figure recorded under HS 8524905000 includes both prepackaged software valued at the price at which it is sold to the foreign buyer and also the value of the medium (tape, disk, etc.) used to send software that will require customizing or assistance in installation abroad or to send a master disk that will allow foreign reproduction. In the latter two cases the value of the medium typically represents a small fraction of the value of the intangible knowledge being transferred.

2. Architectural and engineering services and export management services qualify for FSC treatment. Receipts from exports of patents and other intangibles do not qualify as foreign trade gross receipts (U.S. Department of the Treasury 1990, 7), although exports of masters for the distribution of copyrighted movies, tapes, and records do qualify.

8.2.3 Direct Investment Abroad and Affiliate Production

Suppose a U.S. company develops a new technology in the United States. If it licenses the technology for use in the United States (or exploits the technology itself domestically), the royalty payment (additional income) is treated as domestic-source income and is subject to U.S. tax. If instead the company licenses the new technology to a foreign producer or produces abroad in a foreign affiliate, the royalty it receives is considered foreign-source income.[3]

The profit the parent firm receives after payment of foreign taxes but before the determination of any residual U.S. tax can be represented in this situation as

$$\Pi = (1 - t_f)(1 - w_d)(\text{Rev}_f - \text{Cost} - R) + (1 - w_r)R,$$

where all profits are repatriated, Rev_f represents the revenue that the foreign affiliate is receiving in the foreign market, Cost is the variable cost of production in the foreign country, R is the royalty paid to the parent, t_f is the foreign income tax rate, w_d is the dividend withholding rate, and w_r is the royalty withholding rate. Assume statutory and effective tax rates are identical. If the parent is in an excess foreign tax credit position and U.S. and foreign rules for defining income and allowable expenses are the same, then the foreign tax paid will be the final tax burden and no residual U.S. tax is paid. A firm operating in a low-tax country does not lose that tax advantage, while a firm operating in a high-tax country pays taxes that exceed the comparable burden on domestic-source income.

If the parent firm is in an excess limit position and owes a residual tax to the U.S. government, then the parent's after-tax income derived from its foreign operation is

$$\Pi = (1 - t_{us})(\text{Rev}_f - \text{Cost}).$$

For a firm operating in a high-tax country, this represents an advantage over the situation depicted in the previous paragraph because the higher foreign tax burden generates credits that can shield other foreign-source income the parent earns. Conversely, if the firm operates in a low-tax country but profits are repatriated when earned, the additional U.S. tax due eliminates the tax advantage gained from foreign production in that location. A firm in excess limit, however, may have an incentive to pay a lower royalty. That strategy allows it to gain the benefits of deferring the U.S. tax liability on the income it earns and retains in a low-tax country. The present discussion ignores the opportunity to

3. This presentation assumes that when the firm transfers technology to its affiliate to produce abroad, the affiliate will pay a royalty to the parent. As established in 1984 under Section 367(d) of the Internal Revenue Code, transferring an intangible as described above cannot be used as a tax-free method of capitalizing a foreign affiliate. Tax legislation in 1986 provides that transferring an intangible shall result in a commensurate royalty payment to the parent.

defer that tax liability and does not evaluate the possible benefits from retaining income abroad because the source rule issues discussed above are most relevant to firms in an excess credit position.

In the case of the software industry, the Bureau of Economic Analysis (BEA) judges that sales of computer-related services by foreign affiliates are by far the dominant method of serving foreign markets. In contrast to the exports of goods or services from the United States, which were roughly $2 billion each, total service sales by affiliates in computer and office equipment manufacturing and in professional and commercial equipment were $40 billion in 1993 (Sandheimer and Bargas 1994). Therefore, royalties are likely to be one of the primary forms in which this activity appears in U.S. tax and balance-of-payments tabulations.

8.3 Comparisons of Alternative Tax Treatment

Table 8.1 summarizes the issues discussed above by comparing the after-tax return to capital earned under several alternative tax treatments. The stylized cases assume that the same revenues are earned from foreign sales in all situations. Variable costs of production are assumed to be the same whether production takes place at home or abroad. Two different cases are presented to reflect a difference in the relative importance of variable cost as a share of total cost. The two values chosen, 40 percent and 65 percent, represent differences among export industries that can be inferred from Internal Revenue Service

Table 8.1 **After-Tax Returns from Alternative Transactions to Serve the Foreign Market**

	Variable Cost/Total Cost		Royalties/Foreign-Source Income	
	.40	.65	.40	.20
Case	(1)	(2)	(3)	(4)
Export of goods				
No tariff, no benefits	9.75	9.75		
Tariff, no benefits	8.27	7.20		
FSC benefits, excess limit	8.94	7.80		
Sales source rules, excess credit	10.50	9.16		
Export of services				
U.S. taxation	9.75	9.75		
Affiliate production				
Excess credit, high tax			9.86	8.64
Excess credit, low tax			13.75	13.45
Excess limit, high tax			9.75	9.75
Excess limit, low tax			9.75	9.75

Assumptions: $t_{us} = .35$, $\tau = .10$. High-tax case: $t_f = .45$, $w_d = .10$, $w_r = .10$; low-tax case: $t_f = .10$, $w_d = .025$, $w_r = .025$.

(1993): in industries such as pharmaceutical drugs the cost of goods sold as a share of business receipts is represented by the 40 percent figure, while in various nonelectrical machinery industries the 65 percent value is observed.

Assume that the firm finances its spending on tangible and intangible capital with equity. The importance of intangible capital can only be approximated in rough terms. The 1989 benchmark survey of U.S. direct investment abroad reports the relative importance of parent receipts from affiliates of direct investment income, royalties, and other direct investment services (U.S. Department of Commerce 1992). Royalties may not represent the entire return to intangible capital if some of the return appears as higher direct investment earnings (Grubert 1998). Also, receipts for other services (or charges for parent headquarter expenses) may represent a source of return comparable to royalties in some sectors, but from a tax perspective they represent U.S. domestic-source income. Those payments are more important in several service sectors, including computer and data-processing services, but they are less important in manufacturing. Two cases are considered, one where intangibles account for 40 percent of foreign operating income (before the deduction of royalty payments), and one where they account for 20 percent.

The U.S. income tax rate is assumed to be 35 percent. Operations in two different foreign countries are presented, one with an income tax rate of 45 percent, to represent a high-tax country such as Japan, and one with an income tax rate of 10 percent, to represent low-tax countries such as Singapore, Hong Kong, and Ireland. In the high-tax case the dividend and royalty withholding rates are both 10 percent, while in the low-tax alternative both rates are 2.5 percent. In both cases the tariff rate imposed on imports from the United States is 10 percent.

First compare the tax consequences of exporting a good versus exporting a service. The base case for exports of goods assumes no tariff and no special tax treatment of export income, and the rate of return is calibrated to be the same (9.75 percent) as when a service is exported. The imposition of a tariff reduces the net revenues to exporters of goods, making that way of serving the foreign market less attractive.[4] FSC benefits are not sufficient to offset the effect of the tariff; when the gross profit margin is small, as in column (2), even applying advantageous sales source rules for a firm with excess foreign tax credits results in a lower return. This outcome reflects a relationship familiar from the effective protection literature: a relatively low tariff imposed on a good where value added accounts for a small share of its price can yield a very high effective rate of protection. Because exports of services are not subject to foreign tariffs, that form of serving the foreign market may appear more attractive, as in column (2).

The tax consequences from affiliate production abroad depend importantly

4. This reasoning assumes the firm currently has excess capacity to produce both at home and abroad, and a higher tariff creates an incentive to expand foreign production at the given foreign market price.

on the foreign tax credit position of the U.S. parent. For a firm in an excess credit position the benefit from being able to treat royalties as foreign-source income is determined by the importance of intangibles in the firm's production and by the host-country tax rate that is avoided when the royalty is a deductible expense. Note in column (3), where high royalties are paid, that the deterrent effect of operating in a country with a high income tax rate is offset by the opportunity to pay royalties, which are subject to a low withholding rate. The parent benefits from being able to use its excess credits to offset any residual U.S. tax due. In column (4) the firm has less intangible income, and the effect of the high foreign income tax rate is not offset by the opportunity to pay royalties. Thus, a high-technology firm that receives more of its return from foreign operations in the form of royalties is more likely to gain from operating an affiliate in a high-tax host country.[5]

In the case of a firm without excess foreign tax credits, a residual tax is due in the United States regardless of the host-country tax rate or the extent to which royalties are paid. Production in a high-tax country is not penalized because the opportunity to use the additional foreign tax credits generated by production there means the U.S. firm does not bear the burden of the higher host tax rate.

If the United States were to treat royalties as domestic-source income, the U.S. firm with excess foreign tax credits would not benefit from bringing home lightly taxed foreign-source income free from U.S. tax. The rates of return previously reported in table 8.1 would drop substantially: for the case of a firm paying out a higher share of royalties, returns fall from 9.86 percent to 7.97 percent in the high-tax host country and from 13.75 percent to 11.70 percent in the low-tax host country. Perhaps such a policy shift would give U.S. parents an incentive to declare fewer royalties and instead to make larger overhead charges for R&D, an item that appears in the BEA category "other direct investment services." While such an entry generally would be regarded as U.S.-source income, it typically has not been subject to a high foreign withholding tax.

The negative effect on U.S. firms is not, however, as disadvantageous as if a high-tax foreign government did not recognize royalties as deductible business expenses. In that situation if the same withholding rate were levied on all payments to the parent, then all of the foreign-source income would become subject to the higher foreign income tax rate. The rate of return would fall from 9.86 percent to 6.75 percent.

In summary, source rules that treat royalties and portions of export income as foreign source influence the attractiveness of production at home or abroad.

5. This example ignores any requirement that the parent firm allocate some portion of its U.S. R&D expenses against its foreign source income. Section 861 of the Internal Revenue Code addresses such allocations, but its implementation has varied considerably over time. Allocating expenses to foreign-source income reduces the size of the foreign tax credit that can be claimed. For a parent firm in an excess credit position the parent's loss equals the amount of the allocation times the U.S. tax rate.

Because services provided to foreigners generally are domestic-source income rather than foreign-source income, firms in an excess credit position may find it attractive to structure those transactions in another form. Few general presumptions emerge because the relative advantages of different locations or transactions depend importantly on host-country trade and tax policies, too.

8.4 Foreign Rules for Sourcing Income

U.S. firms are also influenced by foreign rules for sourcing income. In the case of U.S. exports of goods and services, the purchasing country may claim that some part of the income earned is sourced in that country, even if the provider has no permanent business establishment there.[6] Consider situations that involve services, where a host country pays for oil core logs to be analyzed or an economic consulting report to be prepared, but the work is done outside of the country. In the case of a service provided to a related party, many host-country governments will prohibit that party from deducting the payment from its foreign taxable income. If the payment is not to a related party, Colombia, for example, treats the income as domestic source and subject to Colombian income taxation and withholding taxes (McLure et al. 1990).

When a foreign government claims the right to tax service income, it may have no way of verifying what costs are incurred in providing the service. Therefore, it may levy a tax on the gross payment to the foreigner. That approach is similar to imposing a withholding tax on gross interest or royalty payments where no attention is paid to expenses incurred in earning that income. The present example differs from a royalty or interest payment, however, because in this case the U.S. government does not recognize that any foreign-source income is earned. If the U.S. firm already is in an excess credit position, it can make no use of the additional foreign tax credits generated. In terms of the stylized example above, imposing a tax of 9.1 percent on the gross value of the service payment would reduce returns by exactly the same amount as the 10 percent tariff on U.S. exports reported earlier. The penalty on the U.S. producer again arises because the foreign tax is deductible but not creditable. For a higher foreign tax rate, the provision of services becomes even less attractive.

Host-country taxation of this income represents a trade barrier that discriminates against foreign service providers, since those individuals will also face home-country taxation of what the home country regards as domestic-source income. Are there circumstances, however, in which this treatment will have the same neutral effect on trade that arises under the destination principle of border tax adjustment that is applied to indirect taxes?

Under that principle, an indirect tax is imposed on imports and rebated on exports. As shown by various authors (Baldwin 1970; Feldstein and Krugman

6. Tax laws provide no consistent rationale for determining the source of income in such situations. E.g., in the insurance industry income usually is attributed to the country in which the insured risk is located, even though the actuaries who evaluate the risk or the individuals who bear the risk are located elsewhere.

1990) the goal of such border tax adjustment is to leave unaltered the relative prices of domestic and foreign goods both in the home market and in foreign markets. Suppose domestic prices in countries A and B are initially the same before the imposition of an indirect tax by country A. The price of the domestic good becomes $P_a(1 + t)$, and under a destination principle that imposes the same tax on imports, the price of the foreign good becomes $P_b(1 + t)$. Relative prices do not change. Similarly, the price of foreign goods remains P_b in other markets, and when country A rebates the tax on exports, its price remains P_a. Again, relative prices do not change. To impose an indirect tax in order to be able to gain the benefit of destination principle treatment misinterprets the consequences of making border tax adjustments and mistakenly infers there is some benefit available.

A uniform value-added tax levied on all goods has the same economic effect as a general income tax levied on all income. Making the same border tax adjustment for both taxes would call for imposing the income tax on imports and rebating it on exports. Therefore, the distorting effect of the service tax described above arises not because it is imposed on imports but because it is not rebated on exports.

Note that the tax in the service example is an income tax on an individual or corporation, not an indirect tax on computer programs or consulting reports. Therefore, it does not fall within the standard conditions for border tax adjustment under the General Agreement on Tariffs and Trade (GATT). Historically, the GATT has not allowed rebates of direct taxes at the border, and in fact a GATT panel ruled against the U.S. DISC (domestic international sales corporation) program on the grounds that it effectively taxed export income at a lower rate than domestic income and therefore represented an export subsidy.

The new General Agreement on Trade in Services (GATS) is a possible forum to address issues of double taxation or border tax adjustments applied to direct taxes. In the Uruguay Round negotiations the United States strongly opposed such a move (Matthews 1995). Without considering the precise rationale for the U.S. position, recognize there are significant administrative issues to address in verifying what income taxes have been paid in the production of a particular product. Another reason for caution in introducing this issue before the GATS may the existence of ambiguities in the application of the national treatment standard to income tax systems. Determining what constitutes comparable treatment can be difficult. For example, would levying a withholding tax on foreigners in lieu of imposing an income tax on them be construed as resulting in a heavier burden on some foreigners in some years?

8.5 Foreign-Source Income, Taxation, and Firm Response

How important are the incentives created by the two source rules identified above? To address that question, first consider several general measures that indicate the relative importance of various items of foreign-source income. Special attention to active business income reported in the general basket is

warranted because it is used in calculating the foreign tax credit limitation relevant to royalties and allocated export income. A related issue is the likelihood that a firm will have a potential excess of foreign tax credits and thereby benefit from these two source rules. Based on data from 1990, foreign tax credit positions across industries are reported. Finally, efforts to evaluate the effects on firm behavior of the sales source rules and the treatment of royalties are discussed.

8.5.1 The Importance of Active Business Income

Table 8.2 provides a summary of several balance-of-payments entries for investment income and for other payments among affiliated enterprises. In spite of the widely reported surge in portfolio investment as individual savers have bought shares of stock in foreign companies and mutual funds, direct investment receipts are substantial and have risen more rapidly than other private receipts over the decade from 1986 to 1996. Therefore, source rules that govern the calculation of the foreign tax credit limitation for U.S. multinational corporations can have quantitatively significant economic effects.

Royalties grew particularly rapidly between 1986 and 1990, and by 1996 they nearly equaled $30 billion. Over three-fourths of U.S. receipts come from affiliates rather than unrelated parties. That arrangement is not surprising because two unrelated parties may not easily predict or agree on the future profits likely to be generated by an intangible. Affiliation avoids the need to make that sort of forecast. Changes in the tax law discussed above may have given U.S. firms a greater incentive to receive royalties, too. Receipts from other private services are a much larger number than royalties, and from 1990 to 1996 they have grown slightly more rapidly than royalties. In contrast to royalties, however, less than 30 percent are accounted for by receipts from affiliates.

These figures are not directly equivalent to items that appear in the general basket for calculating the foreign income tax limitation. First, only the portion of direct investment earnings repatriated to the United States is subject to a residual U.S. tax or relevant in determining the foreign tax credit limitation. Second, not all foreign-source income declared by U.S. taxpayers appears in the general basket, and therefore it may not be combined with royalties and export income in calculating the foreign tax credit limitation.

With respect to the first point, table 8.2 contains the BEA measure of distributed earnings. The corresponding payout ratio shows considerable variation: it exceeds 70 percent in 1986, 1988, and 1989, but it is less than 40 percent in 1995 and 1996.[7] Predicting future behavior is not straightforward.

7. The BEA series reflects the new convention adopted in 1992 to exclude unrealized capital gains from retained earnings and total earnings. The high payout ratio in 1986 may reflect the desire to repatriate more highly taxed foreign-source income in order to combine it with other income subject to low foreign taxes that subsequently would be treated in separate baskets. For general discussion of the determinants of dividend remittances, including nontax factors such as the potential importance of foreign investment opportunities or parent financial requirements, see Hines and Hubbard (1990) and Altshuler and Newlon (1993).

Table 8.2 **Investment Income and Related Service Flows: United States, 1984–96**

Category	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Income receipts on U.S. assets abroad	104,756	93,679	91,186	100,511	129,366	153,659	163,324	141,408	125,852	129,844	154,510	196,880	206,400
Direct investment receipts	31,262	30,547	31,968	39,608	52,092	55,368	58,740	52,198	51,912	61,241	70,911	90,349	98,890
Earnings	35,593	34,621	35,129	41,918	53,394	55,183	56,958	50,945	50,729	59,559	68,402	86,998	95,514
Distributed earnings	18,687	19,780	26,077	25,264	41,744	43,257	36,553	33,945	34,441	28,847	38,265	32,991	37,629
Other private receipts	68,267	57,633	52,806	55,592	70,571	92,638	94,072	81,186	66,826	63,495	79,498	101,836	102,866
U.S. government receipts	5,227	5,499	6,413	5,311	6,703	5,653	10,512	8,023	7,114	5,108	4,101	4,695	4,644
Royalties and license fees	6,177	6,678	8,113	10,183	12,146	13,818	16,634	17,819	19,656	20,304	22,661	27,383	29,974
Affiliated	n.a.	n.a.	6,174	7,897	9,501	10,961	13,250	14,106	15,718	15,707	17,793	21,670	23,760
Other private services	19,255	20,035	27,303	28,701	30,709	36,204	39,540	47,024	50,294	54,517	61,093	66,850	73,569
Affiliated	n.a.	n.a.	8,385	8,494	9,568	12,296	13,622	14,539	16,581	16,740	18,651	20,272	22,810

Sources: Michael Mann, Daniel Atherton, Laura Brokenbaugh, Sylvia Bargas, "U.S. International Sales and Purchases of Private Services," *Survey of Current Business* 76 (November 1996): 70–112; Christopher Bach, "U.S. International Transactions, Revised Estimates for 1974–96," *Survey of Current Business* 77 (July 1997): 43–99; and unpublished information from the U.S. Department of Commerce.

Note: Figures are in millions of dollars.

With respect to the second point, data reported by the Internal Revenue Service are useful in interpreting the general picture derived from BEA data, even though the calendar-year definitions are not the same. Foreign-source income declared by corporations claiming a foreign tax credit in 1990 was $99.6 billion, while deferred income retained abroad was $34.9 billion. Active foreign-source income reported in the general basket was $73.6 billion; the foreign tax credit limitation was $24.7 billion and the foreign tax credit claimed was $22.6 billion, leaving a residual U.S. tax liability of $2.1 billion. Part of the $99.6 billion received by U.S. corporations was passive foreign-source income (such as interest received), and another part was financial service income. These separate categories of income may be subject to a higher residual rate of U.S. taxation because they cannot be combined with other foreign-source income that has been subject to a high foreign rate of taxation. For example, in the case of passive income of $4.3 billion, the foreign tax credit limitation was $1.462 billion and the foreign tax credit claimed was $385 million; these figures imply an effective foreign income tax rate of 9 percent. In the case of financial service income, the corresponding numbers were a $2.432 billion limitation, a $1.536 billion foreign tax credit claimed, and an effective foreign tax rate of 21.5 percent.

The total foreign tax credit limitation for all corporate income was $29.6 billion, and the foreign tax credit claimed was $25.0 billion. The items in the general basket cited above account for a large share of the U.S. tax liability on foreign-source income (83 percent) but a smaller share of the residual tax collected by the U.S. government after allowing for foreign tax credits (43 percent). While other items are important from the standpoint of tax administration, the incentives examined in this paper apply to a significant part of U.S. activity abroad.

8.5.2 The Excess Credit Position of U.S. Parent Firms

By reducing the U.S. statutory tax rate and establishing separate income baskets to calculate the foreign tax credit limitation, the Tax Reform Act of 1986 made it much more likely that U.S. parent firms would be in excess credit positions with respect to income in the general basket. Tax return data analyzed by Altshuler and Newlon (1993) from the set of U.S. companies with positive foreign-source income indicate that the percentage of income reported by firms in excess credit positions was 35 percent in 1982 and 42 percent in 1984. The postreform figure for 1990 shows that 65 percent of the income declared in the general basket was by firms with excess foreign tax credits. Therefore, a much wider set of firms can benefit from favorable source rules than was true a decade earlier. Whether this figure declines in the future depends in part on how costly firms find it to shift income or operations out of high-tax countries or whether foreign countries reduce their tax rates in competition with the United States.

The extent to which benefits are available from declaring additional foreign-

source income varies considerably across industries. Based on 1990 data table 8.3 shows the amount of foreign-source income declared by industry and the extent to which aggregate tax payments exceeded the foreign tax credit limitation for firms in the industry. Column (3) shows the percentage of foreign-source income accounted for by firms in an excess credit position, and column (4) presents the average effective tax rate on active foreign-source income.

Note the unique position of the office and computing machinery industry. Not only does it account for nearly half of all the excess credits reported by nonpetroleum manufacturing parents, but the proportion of industry income accounted for by firms with excess credits exceeds 95 percent. That industry, however, should not be regarded as typical of all high-technology industries where returns to intangibles are an important part of total revenue. Other high-technology industries such as drugs and electronics owe a residual U.S. tax. Some industries may be more reliant on production and sales in high-tax countries, while other industries are more footloose and can locate production in low-tax countries but still serve high-tax markets. Furthermore, the average effective tax rate is an endogenous variable, determined by the mix of repatriated income subject to different tax rates, and some industries may have a lower cost of adjusting the form of their repatriations in order to reduce their overall tax burden.

The Altshuler-Newlon study also reports the likelihood that a firm's foreign tax credit position changes from excess credit to excess limit or vice versa. Comparing 1980 to 1982 and then 1982 to 1984, they find that 52.4 percent and then 58.1 percent of income was reported by firms whose tax credit positions did not shift. That leaves a significant share of firms whose positions did shift, perhaps due to exogenous changes in policy or to random shocks over the business cycle or to tax-motivated adjustments by the firm. While a firm might have less incentive to alter its exports or foreign production if an excess credit position were only transitory, how should observed shifts in the firm's foreign tax credit position be interpreted? Knowing a firm's expected or more permanent ex ante foreign tax credit position would allow a more accurate assessment of the role of taxes. Altshuler and Newlon create such a proxy in their study of multinational repatriation practices, a good precedent for other work. If firms assign a high probability to having excess credits, even firms in excess limit will respond to the source rule incentives discussed above.

8.5.3 The Sales Source Rules

The sales source rules do not provide a neutral incentive to all U.S. exporters. Rather, the incentive only arises when the firm is a multinational corporation with foreign affiliate operations that generate excess foreign tax credits. The greater the profit rate per dollar of sales, the greater the benefit to multinational exports. Because such multinational corporations also may pay high royalties, however, they may not consider sales source rule benefits to be the most desirable strategy to absorb foreign tax credits.

Table 8.3 **Excess Credit Positions of U.S. Corporations, 1990**

Industry	Foreign Source Income (1)	Excess Credit (2)	Share of Income Reported by Firms in Excess Credit (3)	Average Effective Foreign Tax Rate (4)
Food	2,914	26	37.8	34.8
Paper	1,454	−16	13.6	32.9
Industrial chemicals	4,840	59	68.4	34.8
Drugs	3,867	−46	34.2	32.9
Other chemicals	2,616	104	30.2	37.6
Primary metals	1,107	14	33.0	34.6
Fabricated metals	1,173	23	72.3	35.9
Office and computing machinery	10,875	516	95.5	38.8
Other nonelectrical machinery	1,551	117	62.7	40.2
Electrical machinery and electronics	4,222	−153	47.6	29.6
Motor vehicles	4,314	181	99.4	38.2
Other transport equipment	1,105	39	21.5	36.7
Instruments	2,552	95	68.0	37.3
Other manufacturing	4,429	106	44.5	36.1
Total manufacturing, except petroleum	47,019	1,066	62.8	36.0

Source: U.S. Department of the Treasury, Office of Tax Analysis, unpublished information.

Note: All dollar values are in millions.

Rousslang's review of the sales source rules provides direct observation of which firms actually claimed these benefits. Thirty-six percent of the allocated export income was claimed by firms in excess credit positions, although those firms accounted for 73 percent of the tax saving. By claiming additional foreign-source export income, many firms converted their position from one of potential excess credits to one of excess limit. Industries that gained an above average tax benefit, measured as a share of export sales, appear to be paper and publishing, drugs and toiletries, office and computing machinery, electrical machinery and electronics, and instruments.[8] Note that this list includes the three manufacturing industries in table 8.3 that were not in excess credit in 1990. In those industries the tax incentive to expand exports further is much smaller on average.

Rousslang projects the potential effect of the sales source rules by calculating the marginal reduction in the cost of capital from this tax benefit, multiplying the resultant price effect by the relevant export demand elasticity, and finally allowing for subsequent adjustment of the exchange rate. Such a procedure is standard practice when the effect of a tax policy change is difficult to disentangle from other influences, although its accuracy depends on the appropriate elasticities being known.

If the experience of individual firms were to be evaluated to verify such projections, what effects would demonstrate the influence of the sales source rules? One possibility is that the tax benefit from exporting would cause the U.S. parent to serve foreign markets by greater export production rather than affiliate production abroad. Under that scenario the ratio of exports to affiliate sales is likely to rise, especially if the foreign market is fixed in size and greater exports necessarily cause a reduction in affiliate sales. Another possibility, however, is suggested by a complementary relationship between exports and affiliate sales (Lipsey and Weiss 1981; Grubert and Mutti 1991). In this situation, a U.S. export may be an input with few close substitutes in foreign production, but the output produced abroad may be sold in markets where there are many substitutes available. Thus, a lower tax on U.S. exports or a lower tax on foreign profits both promote exports and affiliate sales. Where output will be affected most cannot be predicted a priori when affiliate sales represent a mixture of sales in a protected home market and in more competitive world markets.

For example, in a regression to explain the ratio of U.S. exports to total affiliate sales, based on the Commerce Department's 1982 benchmark survey of direct investment abroad used in Grubert and Mutti (1991), a higher foreign corporate income tax rate reduces the export share:

8. This calculation is based on Rousslang's figure for the foreign tax credits absorbed in each industry divided by U.S. multinational exports in that industry, as reported in U.S. Department of Commerce (1992).

$$\ln[\text{Exports}/\text{Affiliated sales}] = 12.69 + 4.37\ \ln(1 + \text{Tax}) - .17\ \ln \text{GDP}$$
$$(2.42)\quad (3.19)\qquad\qquad (-.86)$$
$$-\ .64\ \text{Trade barrier}$$
$$(-2.06)$$
$$-\ 1.02\ \ln \text{GDP}/\text{Capita} + 2.06\ \text{Transport},$$
$$(-2.27)\qquad\qquad (1.69)$$
$$F_{5,27} = 4.69, \qquad R^2 = .37$$

where Tax is the host-country corporate tax rate, Trade barrier is a World Bank categorization of progressively more restrictive host country trade policy, Transport is a dummy for sales within North America, and the numbers in parentheses are *t*-statistics. The regression also appears credible in demonstrating that exports will be lower where trade barriers are higher and where production in the host country is more likely due to a larger market and higher labor productivity. Using the next available benchmark survey for 1989 for the same set of countries, however, the tax coefficient is insignificant. That outcome does not indicate that taxes are unimportant but only that there is not a differential effect on exports and affiliate sales.

This distinction can be seen by considering the two separate demand equations:

$$\ln(\text{Exports}) = a_0 + a_1\ \ln(1 - \text{Tax}) + a_2\ \ln \text{GDP} + \cdots,$$
$$\ln(\text{Affiliate sales}) = b_0 + b_1\ \ln(1 - \text{Tax}) + b_2 \ln \text{GDP} + \cdots,$$

and then subtracting the second from the first to give

$$\ln(\text{Exports}/\text{Affiliate sales}) = (a_0 - b_0) + (a_1 - b_1)\ln(1 - \text{Tax})$$
$$+ (a_2 - b_2)\ln \text{GDP} + \cdots$$

In 1989 higher foreign corporate income taxes still have a negative effect on affiliate sales (a statistically significant estimate of b_1), but the effect on exports is too imprecisely estimated for the difference between the two to be significant.

Kemsley (1995) relies on a similar ratio approach to assess the sales source rules, but he obtains different results. Based on a time-series analysis of Compustat data for individual firms he identifies two trends in the post-1986 period: exports relative to affiliate sales have risen, and a larger share of firms appear to be in excess credit positions. He estimates that firms in excess credit positions account for this increased reliance on exports to serve foreign markets. Average export sales in his sample are $80 million per firm, and he projects that in the absence of the sales source benefits a firm would export $70 million less.

This strong effect may be due to systematic differences across firms in the

products they make, the country markets they serve, and the tax rates applicable in those markets. For example, exporters may successfully develop markets in high-tax countries, but their sales may be more attributable to tastes or income levels in those countries than to tax factors. Therefore, Kemsley also estimates an aggregate cross-sectional relationship similar to the one reported above.[9] He again reports a strong effect from the sales source rules: in countries with higher tax rates a larger share of the market is served by exports and this relationship is more pronounced in 1989 than in 1982.[10] Because the causation in this relationship still is ambiguous, it is premature to claim a precise measure of the sales source rules' effectiveness.

8.5.4 Royalties as Foreign-Source Income

Royalty receipts are much larger than allocated export income under the sales source rules, and at least in absolute terms a greater influence on multinational operations can be expected. By paying royalties a firm can increase its after-tax return from operating in high-tax countries. The tax saving is greater for firms that would be in excess credit than for those in excess limit. Under what circumstances will this tax saving affect the location of real economic activity?

If the foreign market can only be served by affiliate production and if the technology developed for the home market can be costlessly applied to produc-

9. By looking at two different benchmark years, Kemsley explicitly considers changes in the cost of exporting from the United States. The two demand equations become

$$\ln(\text{Exports}) = a_0 + a_1 \ln P_x + a_2 \ln P_f + a_3 \ln \text{GDP} + \cdots,$$

$$\ln(\text{Affiliate sales}) = b_0 + b_1 \ln P_x + b_2 \ln P_f + b_3 \ln \text{GDP} + \cdots,$$

where P_x represents the price of exporting from the United States, which is affected by the U.S. tax rate on export income, and P_f represents the price of affiliate production in the foreign country, which is affected by the host-country tax rate for firms in excess credit. If changes in export and foreign prices are presumed to have symmetric effects, then the ratio of export to affiliate sales appears as

$$\ln(\text{Exports} / \text{Affiliate sales}) = (a_0 - b_0) + e \ln(P_x / P_f) + (a_3 - b_3)\ln \text{GDP},$$

where the elasticity of substitution, e, requires that $a_1 + a_2 = b_1 + b_2$, a testable constraint from parameters estimated in the two separate demand equations (Leamer and Stern 1970).

10. The dominance of the substitution effect in Kemsley's sample of firms may be attributable to a different conceptual measure, aside from the difference in data source and time frame: by focusing only on multinational exports to unrelated parties, which thereby excludes 43 percent of multinational exports, possible complementarities between U.S. and foreign production are less likely to be observed. In the cross-sectional study, treating only the ratio between exports and affiliate sales may obscure the causal relationship involved. For example, affiliate production may be lower in countries with high tax rates, which would cause the ratio of exports to affiliate sales to rise even in the absence of a separate effect on exports from the sales source rules. Because Kemsley does not report separate export and affiliate demand estimates, or the corresponding separability tests noted above, reasons why his results differ from Grubert and Mutti cannot be clearly identified. Possible explanations are differences in the definition of the tax variable (average effective tax rates vs. statutory tax rates) and differences in the set of countries included in the analysis.

tion in the foreign market, then the royalty represents a pure rent. A change in the tax treatment of the royalty merely changes the distribution of the rent without altering the firm's operations in the country. If the firm can exploit the technology elsewhere and still serve the same foreign market, however, favorable tax treatment of the royalty can alter the incentive to produce in a country. In particular, treating royalties as foreign-source income reduces the disadvantage of producing in a high-tax country where the cost of equity-financed investment otherwise is higher.

Two relationships are relevant in assessing the empirical response to this tax incentive. One is the tendency for firms to pay larger royalties from high-tax locations. Aggregate data from the 1989 benchmark survey show this effect quite strongly, for various representations of royalty payments as the dependent variable and for various potentially relevant tax effects. The relevant tax variable is somewhat ambiguous because the tax price of paying a royalty depends on the foreign tax credit position of the parent and the alternative forgone (retaining income abroad, paying a dividend, paying interest, etc.). Also, if royalties are represented relative to assets or sales, the foreign tax rate influences the denominator as well, implying a different functional form.

Estimates based on the aggregate data used above for all affiliates in a host country give the following results:

$$\text{Royalty/sales} = .009 - .040\, w_r - .028 \ln(1 - t), \quad F_{2,27} = 8.50,\ R^2 = .34;$$
$$(2.38)\ (-3.28)\ \ (-2.48)$$

$$\text{Royalty/sales} = .010 - .040\, w_r + .032\, t, \quad F_{2,27} = 7.12,\ R^2 = .30;$$
$$(2.18)\ (-3.19)\ \ (-2.01)$$

$$\text{Royalty/sales} = .017 - .038\, w_r - .0006\, t - .083\ \text{High} + .23\ \text{High} * t,$$
$$(4.40)\ (-3.99)\ \ (-.37)\ \ (-3.74)\ \ (4.31)$$
$$F_{4,25} = 11.89,\ R^2 = .60;$$

where w_r is the withholding rate imposed on royalties, t is the effective income tax rate, High is a dummy equal to one for those countries where the effective tax rate exceeds 0.34, and the term High * t multiplies this dummy by the tax rate. Royalties as a share of affiliate sales are larger in countries where the foreign income tax rate is higher and the royalty withholding rate is lower. The final equation suggests that firms operating in countries where the foreign tax rate exceeds the U.S. rate are particularly likely to be those that can adopt the strategy of paying higher royalties. This relationship is demonstrated more completely in an analysis of firm-specific data by Grubert (1998), which controls for firm characteristics such as R&D expenditures and also treats other repatriation decisions the firm makes.

This effect on financial practices also may affect the firm's real operations.

Using firm-specific tax return data for 1990, Grubert and Mutti (1995) found that probit estimates of the likelihood of a firm's locating in a given country were quite sensitive to the host-country corporate income tax rate. The size of this deterrent tax effect fell by roughly 20 percent when a variable was included that interacted the relevant tax rate with a firm's expenditure on research and development per dollar of assets. That is, the opportunity to pay royalties is greater for companies that have larger stocks of intangible, intellectual property (represented by research and development expenditures), and firms that can pay higher royalties face less of a penalty operating in high-tax countries. The empirical estimates from 1990 data suggest that the opportunity to treat royalties as foreign-source income does encourage investment in high-tax locations. Subsequent analysis based on 1992 data, however, did not find this relationship to be significant. Establishing the robustness of potential effects of source rules on the location of real activity apparently will require additional data and analysis.

8.6 Conclusions

This paper extends an earlier literature by Horst (1971) and others from the 1970s that demonstrated how low tax rates and the opportunity to defer the repatriation of foreign income created an incentive to locate production abroad rather than export from the United States. The focus here is on a different set of tax provisions that also may influence the location of production internationally. Rather than analyze the level of foreign tax rates, however, the paper evaluates U.S. rules for sourcing income, a determination that is important in calculating the foreign tax credit limitation. These source rules have become increasingly important because a much larger proportion of the income earned abroad by U.S. exporters and by U.S. subsidiaries is reported by parents in excess foreign tax credit positions.

The ability to characterize income as foreign source is especially beneficial to firms with excess credits because income that is subject to little taxation abroad also may be free of U.S. taxation. The stylized examples demonstrate that while the effects of these provisions are not as transparent as the effects of statutory tax rates, they create significant incentives to report taxable income in certain forms. The sales source rules provide an important benefit by allowing roughly half of export income to be regarded as foreign source. Treating royalties as foreign source may provide an even greater benefit to affiliate production, though, since royalties reduce the affiliate's foreign tax burden and may create no U.S. tax liability when the parent is in an excess credit position. That potentially large effects on firm profits lead to large changes in real economic activity cannot be conclusively demonstrated. Tentative evidence suggests that U.S. exports increase as a result of the sales source rules, and foreign production in high-tax locations is encouraged by treating royalties as foreign-source income.

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Comment

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One of the persistent questions in international economic research is, Why do some firms choose to develop multinational production facilities while others expand internationally through direct export or licensing arrangements? Despite decades of research into the issue, the profession has arrived at few unequivocal conclusions. Rather, we have learned that the organization of a firm's global expansion efforts may be influenced by many competing factors, including but not limited to standard international trade issues, such as comparative advantage and tariffs; standard industrial organization issues, such as market concentration; and of course taxes. Indeed, the explicit question of the extent to which tax burdens may affect the location of investment has received an increasing amount of attention in the wake of the 1986 tax reform. (See Hines 1996 for a review of the literature.)

This paper contributes to the discussion of the relationship between tax policy and multinational production decisions in two important ways. First, in the tradition of Ault and Bradford (1990), this paper documents the rules governing the sourcing of foreign income for U.S. corporations, providing a much needed resource on such complications as the use of foreign sales corporations, sales source rules for recharacterizing export income as foreign source, and the treatment of royalty income.

Through the use of the extended example of the U.S. computer industry selling computing services abroad, the reader can see the conflicting incentives inherent in the source rules. Moreover, it also becomes clear that firms able to easily recharacterize the nature of a transaction—for example, from a product export to service income—may avoid taxation in a manner unintended by policymakers. This may be particularly relevant in technology-intensive industries: the sale of computer software may be indistinguishable from the provision of some computer service, from the clients' perspective. However, since tariffs are rarely imposed on service provision, this recharacterization gives new meaning to the idea of tariff jumping.

The second contribution of the paper is that the authors provide some comparisons of the likely magnitude of incentive effects from various combinations of these rules and in so doing generate some empirically testable implications of source rules on investment. For instance, higher foreign tariff rates discourage U.S. production relative to licensing or investment in foreign production capacity; hence, reductions in foreign tariff rates should increase domestic production, all else equal. In addition, for excess credit firms, affiliate production when royalties can be classified as foreign-source income is particularly attractive in low-tax locations. Finally, since the value of the tax incentives are closely tied to the domestic tax rate, researchers may be able to mea-

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sure the sensitivity of firms to these incentives by considering individual firm reliance on various methods of global expansion and production before and after changes in the U.S. tax rate, as happened in 1986.

In using these benchmark numbers to generate empirical implications, the reader should be aware that the authors make some incidence assumptions. For instance, in calculating the residual profit from exporting goods subject to an import tariff, the authors have implicitly assumed that consumers in the foreign market bear the full burden of the tariff. This is a reasonable assumption only insofar as the good in question is provided by a firm in a competitive market. The incidence of import tariffs imposed on the product of firms with significant market power is likely to be substantially different, requiring a revision of the return calculation. Since intraindustry trade between oligopolies is an increasingly important aspect of international trade flows, this incidence assumption needs to be considered carefully by researchers confronting data having derived testable implications from the relative returns calculations presented by the authors.

Unfortunately, this work is not as broadly applicable as the researcher interested in international tax policies might guess given the title of section 8.1: "Basic Approaches in Taxing Foreign-Source Income." The paper does not, as that phrase implies, attempt to review the range of approaches to taxing foreign-source income around the globe. Rather, the paper is a more narrowly focused exploration of the U.S. system of sourcing rules. Since few other countries have similar rules, researchers must be careful not to extrapolate too much from U.S. experience, summarized so nicely here, for the differences typically extend beyond the details of tax rates. Fully one-third of the countries in the world impose taxes only on income derived from local activities (so-called territorial taxation). Because foreign-source income plays no role in local tax collections, these countries experience no distortions or complications arising from necessarily arbitrary definitions (Hines and Willard 1994).

Even among those countries that do tax worldwide income of their residents, the U.S. practice of defining foreign-source income appears atypical. Japan and the United Kingdom, for instance, allow host-country definitions of income to prevail for their multinational firms. This U.S.-centric view of taxation is notable, for instance, in the discussion of host-country taxation of service income. Mutti and Grubert argue that this type of income taxation amounts to a trade barrier because "those individuals will also face home-country taxation of what the home country regards as domestic-source income." This conflict will clearly never arise for countries that allow host-country definitions to prevail in determining the source of income.

Nevertheless, with this caveat in mind, the paper by Mutti and Grubert provides a good stepping-off point for understanding the U.S. approach to foreign-source income and gives the reader a good understanding of the marginal decisions that can be distorted by policy rules defining the source of income.

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