"Tax Sparing" and Direct Investment in Developing Countries

by

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L E A D I N G   I N   T H O U G H T   A N D   A C T I O N

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ABSTRACT

This paper analyzes the effect of "tax sparing" on the location and performance of foreign direct investment (FDI). "Tax sparing" is the practice of adjusting home country taxation of foreign investment income to permit investors to receive the full benefits of host country tax reductions. For example, Japanese firms investing in countries with whom Japan has "tax sparing" agreements are entitled to claim foreign tax credits for income taxes that they *would* have paid to foreign governments in the absence of tax holidays and other special abatements. Most high-income capital-exporting countries grant "tax sparing" for FDI in developing countries, while the United States does not.

Comparisons of Japanese and American investment patterns reveal that the volume of Japanese FDI located in countries with whom Japan has "tax sparing" agreements is 1.4-2.4 times larger than what it would have been otherwise. In addition, Japanese firms are subject to 23% lower tax rates than are their American counterparts in countries with whom Japan has "tax sparing" agreements. Similar patterns appear when "tax sparing" agreements with the United Kingdom are used as instruments for Japanese "tax sparing" agreements. This evidence suggests that "tax sparing" influences the level and location of foreign direct investment and the willingness of foreign governments to offer tax concessions.

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1. Introduction.

Only a small fraction of the world's foreign direct investment (FDI) is located in developing countries. In 1990, countries that were not members of the OECD received roughly 15% of the $200 billion of world FDI. Since these developing countries account for 35% of world GDP in 1990 (and 80% of the world's population), they received a much smaller fraction of total FDI than even their relatively modest economic activity levels appear to warrant. Numerous explanations have been advanced to account for the unwillingness of investors to locate FDI in the developing world, typically focusing on distances to final markets, the difficulty or cost of obtaining important factors of production, inhospitable legal and regulatory environments, and the relatively undeveloped state of public infrastructure such as roads, port facilities, and telecommunications.[1] While the large number of available explanations can make it difficult to identify the most important determinants of FDI, many explanations share the feature that poor local economic conditions discourage FDI that might otherwise contribute to local economic development.

High-income countries are generally eager to promote economic development in low-income parts of the world. With that goal (and others) in mind, they often provide special fiscal incentives for their own firms to do business in developing countries. This paper examines the effect of the most common of these incentives, the provision of "tax sparing" credits.

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[1] See, for example, Calvo et al. (1996), who note that the share of world FDI received by developing countries has risen since 1990. Data reported by the United Nations (1997, p. 303) indicate that the developing countries received 18% of world FDI flows over the 1985-1990 period, and close to 35% of world FDI flows over the 1991-1995 period.

"Tax sparing" is a practice designed to promote the effectiveness of local tax incentives for foreign investment. Developing countries are often willing to provide foreign investors significant fiscal incentives in order to encourage FDI and thereby stimulate local economic growth. Popular incentives include lengthy tax holidays, expensing or other generous tax treatment of new investment expenditures, and other tax reductions – as well as providing roads, worker training, and other public inputs at below-market prices. Tax incentives have the ability to stimulate foreign investment effectively and efficiently. Home-country tax systems may, however, reduce – or, in some cases, completely remove – incentives created by host-country tax abatements through corresponding increases in home-country tax burdens.

As an example, a multinational firm headquartered in a home country (such as the United States or Japan) that operates a residence-based worldwide tax system and grants foreign tax credits may find that tax reductions offered as investment incentives by host countries are exactly offset by higher home-country taxes. The reason is that host-country tax reductions imply that the firm can claim fewer foreign tax credits against home-country tax obligations.

In reaction to this possibility, many governments provide "tax sparing" credits for investments in developing countries. "Tax sparing" is the practice by which capital exporting countries amend their taxation of foreign source income to allow firms to retain the advantages of tax reductions provided by host countries. Specifically, "tax sparing" often takes the form of allowing firms to claim foreign tax credits against home-country tax liabilities for taxes that *would* have been paid to foreign governments, in the absence of special abatements, on income from investments in certain developing countries.

Since foreign tax credits are then based on tax obligations calculated without regard to taxes actually paid, any special tax breaks offered by host country governments enhance the after-tax profitability of foreign investors and are not simply offset by higher home-country taxes.

The practice of granting "tax sparing" credits is controversial, coming under fire from critics who claim that "tax sparing" credits are ineffective in encouraging greater investment in developing countries. The purpose of this paper is to evaluate this claim. Specifically, the paper compares patterns of Japanese and American FDI over the same time period. Japan permits its firms to claim "tax sparing" credits for investments in certain developing countries, while the United States does not. Holding other considerations constant, it follows that, to the extent that "tax sparing" is effective, Japanese firms will exhibit greater willingness than American firms to invest in developing countries. In addition, Japanese firms are more likely than are Americans to receive special tax breaks from countries with whom Japan has "tax sparing" agreements.

The results indicate that "tax sparing" is effective in stimulating FDI. Japanese firms locate a much higher fraction of their foreign investment in countries with whom Japan has "tax sparing" agreements than do American firms. Furthermore, host governments appear to grant Japanese firms significant tax reductions that are not available to their American counterparts. All other things equal, "tax sparing" agreements are associated with 140%-240% higher FDI levels and 23% lower tax rates on FDI.

Since Japan does not randomly assign "tax sparing" agreements to developing countries, one interpretation of the FDI evidence is that low-income countries with whom

Japan has significant economic relations due to geographic proximity or cultural connections are those with whom Japan, in turn, decides to sign "tax sparing" agreements. In order to evaluate this interpretation, the regressions are re-run using as an instrument for Japanese "tax sparing" status the existence of a "tax sparing" agreement between the United Kingdom and the country in question. The United Kingdom has a tax system very similar to Japan's, and is likewise a major capital exporter that grants "tax sparing" for investments in a large number of developing countries – but the United Kingdom's geographical and cultural connections differ from Japan's. The results obtained using U.K. "tax sparing" agreements as instruments for Japanese "tax sparing" agreements are very similar to those generated by the OLS regressions that take Japanese "tax sparing" to be exogenous.

These results are consistent with a growing body of recent evidence that tax systems influence the volume and location of FDI. Much of this evidence concerns the activity of American firms, or of foreign firms investing in the United States, so it is useful to compare the behavior of American firms to the behavior of firms from a country, such as Japan, that has an otherwise-similar tax system that differs in an important respect ("tax sparing"). The results are particularly impressive in light of the fact that host countries with whom Japan has "tax sparing" agreements face incentives to substitute tax incentives for non-tax investment incentives they would otherwise offer Japanese firms. Since non-tax investment incentives are difficult to verify and impossible to quantify, they are omitted from the regressions, so to the degree that such incentives influence investment patterns there is likely to be a bias against finding an important effect of "tax sparing" on the volume of FDI.

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Section two of the paper reviews the tax treatment of foreign investment income and evidence of the impact of taxation on FDI patterns. Section three presents a model of the effect of "tax sparing" on FDI when host governments provide tax and non-tax inducements to foreign investors. Section three also describes the data used in the empirical analysis. Section four presents the regression results. Section five is the conclusion.

2. Taxation and Foreign Direct Investment.

In order to appreciate the likely effect of Japanese willingness, and American reluctance, to grant "tax sparing" for investments in developing countries, it is useful first to review important aspects of the Japanese and American systems of taxing foreign-source income.[2] This review is greatly simplified by the strong similarities between the two tax systems. This section then considers the likely implications of "tax sparing" given existing evidence of the effect of taxation on the volume and location of FDI.

2.1 Japanese and American taxation of FDI.

Both Japan and the United States tax income on a residence basis, meaning that corporations and individuals owe taxes to their home governments on all of their worldwide incomes, whether earned at home or abroad. In order to avoid subjecting multinationals to double taxation, Japan and the United States permit firms to claim foreign tax credits for income taxes (and related taxes) paid to foreign governments.[3]

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[2] Portions of the following brief description of U.S. law are excerpted from Hines (1991, 1997) and Hines and Hubbard (1995).

[3] Japan and the United States are not alone in taxing the worldwide income of its resident companies while

The U.S. corporate tax rate is currently 35 percent. Under the foreign tax credit system, an American corporation that earns $100 in a foreign country with a 15% tax rate pays a tax of $15 to the foreign government and $20 to the U.S. government, since its U.S. corporate tax liability of $35 (35% of $100) is reduced to $20 by the foreign tax credit of $15.

2.1.1 Tax deferral.

Under Japanese and American law, firms must pay taxes to home governments on their worldwide incomes, with the exception that a certain category of foreign income is temporarily excluded from home-country taxation. The excluded category is the unrepatriated portion of the profits earned by foreign subsidiaries; taxpayers are permitted to defer any home-country tax liability on those profits until they are paid as dividends to parent firms resident in Japan or the United States.[4] This deferral is available only on the active business profits of foreign affiliates that are separately incorporated as subsidiaries in foreign countries. The profits of unincorporated foreign businesses, such as those of Japanese or American branch banks in other countries, are taxed immediately by their home governments.

To illustrate deferral, consider the case of a foreign subsidiary of an American firm that earns $200 in a foreign country without corporate taxes. This subsidiary might remit $50 in dividends to its parent American company, using the remaining $150 to

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permitting firms to claim foreign tax credits. Other countries with such systems include Greece, Italy, Norway, and the United Kingdom. Under Japanese and American law, firms may claim foreign tax credits for taxes paid by foreign affiliates of which they own at least 10 percent, and only those taxes that qualify as income taxes are creditable.

reinvest in its own, foreign, operations. The American parent firm must then pay U.S. taxes on the $50 of dividends it receives, but is not required to pay U.S. taxes on any part of the $150 that the subsidiary earns abroad and does not remit to its parent company. If, however, the subsidiary were to pay a dividend of $150 the following year, the firm would then be required to pay U.S. tax on that amount. Japanese, and, to a greater extent, American, laws restrict the ability of firms to avoid home-country taxes by delaying the repatriation of lightly-taxed foreign earnings. American laws do so by recharacterizing income from passive investments, conduit income, and funds reinvested in home countries as "deemed distributed" and therefore immediately taxable by home governments. Japanese laws do so with rules restricting the ability of subsidiaries to defer home taxation of profits earned in foreign tax havens.

2.1.2 Excess foreign tax credits.

The Japanese and American governments permit firms to claim foreign tax credits, doing so with the understanding that these policies reduce tax collections on any given amount of foreign-source income. The foreign tax credit is intended to reduce the problems created by international double taxation, since, in the absence of some kind of correction, the combined burdens of host-country and home-country taxation might effectively prohibit most international business transactions. Consequently, governments design their foreign tax credit systems to prevent firms from using foreign tax credits to reduce home-country tax liabilities that arise from profits earned *within* home countries.

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[4] Deferral of home-country taxation of the unrepatriated profits of foreign subsidiaries is a common feature of systems that tax foreign incomes. Other countries that permit this kind of deferral include Canada, Denmark, France, Germany, Norway, Pakistan, and the United Kingdom.

There are limits on the foreign tax credits that Japanese and American firms can claim; a firm's foreign tax credit limit equals the home-country tax liability generated by its foreign-source income. For example, with a U.S. tax rate of 35 percent, an American firm with $200 of foreign income faces a foreign tax credit limit of $70 (35 percent of $200). If the firm pays foreign income taxes of less than $70, then the firm would be entitled to claim foreign tax credits for all of its foreign taxes paid. If, however, the firm pays $95 of foreign taxes, it would be permitted to claim no more than $70 of foreign tax credits.

Firms described by this second case, in which foreign tax payments exceed the foreign tax credit limit, are said to have "excess foreign tax credits;" the excess foreign tax credits represent the portion of foreign tax payments exceeding home-country tax liabilities generated by foreign incomes. Firms described by the first case, in which foreign tax payments are smaller than the foreign tax credit limit, are said to have "deficit foreign tax credits." Under Japanese and American law, firms can use excess foreign tax credits in one year to reduce their tax obligations in other years. Japanese firms are allowed to apply any excess foreign tax credits against their Japanese tax obligations in the three previous years or in any of the following three years; American firms are allowed to apply any excess foreign tax credits against U.S. tax obligations in the two previous years or in any of the following five years. Foreign tax credits are not adjusted for inflation when applied against tax obligations in other years.

In practice, the calculation of the foreign tax credit limit entails many complications not reviewed here. One is that Japanese and American laws require firms to use all of their worldwide foreign incomes to calculate foreign tax credit limits. Firms

then have excess foreign tax credits if their worldwide foreign income tax payments exceed this limit.[5] This procedure is known as "worldwide averaging."

2.1.3 *"Tax sparing."*

"Tax sparing" denotes the practice of amending home-country taxation in a way that permits investors to receive the full benefits of tax reductions by host countries. Many developed countries, such as France, Germany, Japan, Norway, Sweden, and the United Kingdom, offer one form or another of "tax sparing" for investments in certain developing countries. In the cases of Japan and the United Kingdom, who have tax systems very similar to that of the United States, "tax sparing" typically takes the form of permitting firms to claim foreign tax credits for foreign taxes that would be paid in the absence of special tax abatements. As a result, the benefits of any host-country tax abatements are not offset by reductions in the foreign tax credits that investors can claim against home-country tax liabilities. This consideration is important to the extent that firms have deficit foreign tax credits and would incur significant costs in deferring repatriation of foreign profits to years in which there would be no associated home-country tax liability.[6]

Japan and the United Kingdom grant "tax sparing" credits through the terms of bilateral treaties with low-income countries. The Japanese government explains that it

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[5] Not all countries that grant foreign tax credits use worldwide averaging. For example, the United Kingdom instead requires its firms to calculate foreign tax credits on an activity-by-activity basis. The United States once required firms to calculate separate foreign tax credit limits for each country to whom taxes were paid; the current system of worldwide averaging was introduced in the mid-1970s.

[6] See Hartman (1985), Sinn (1993) and Hines (1994) for analysis of the incentives created by foreign tax credits and deferral of home-country taxation. For evidence of the effect of home-country taxation on dividend repatriations, see Hines and Hubbard (1990), Altshuler and Newlon (1993), and Altshuler et al. (1995).

grants such credits in order to maintain the ability of developing countries to use fiscal incentives to attract Japanese FDI.[7]

The United States has been unwilling to grant "tax sparing" in any of its bilateral tax treaties, though the issue has arisen on numerous occasions. The most visible episode took place in 1957, when the United States signed a treaty with Pakistan providing that the United States would grant "tax sparing" credits for American investments in Pakistan. At the time, Pakistan granted tax concessions to qualifying enterprises making new investments in certain industries. Under the terms of the treaty, American investors in Pakistan would be entitled to claim foreign tax credits for the taxes they would have paid to Pakistan absent the special concessions granted by the Pakistani law.

American tax treaties are not legally binding unless and until ratified by the U.S. Senate. After extensive hearings and deliberations, and amidst considerable controversy,[8] the U.S. Senate ratified the Pakistan treaty, but in so doing struck from the treaty its "tax sparing" provision. In subsequent treaties over the following 41 years the United States has been unwilling to provide "tax sparing" for investments in any country.[9] In opposing ratification of the Pakistan treaty, Surrey (1958) argues that

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[7] "Many developing countries have introduced various tax incentives in order to attract investment from abroad. Without the tax-sparing credit system, even if such tax incentive exempts Japanese investors from tax in a foreign country, they are taxed on worldwide income in Japan and the spared amount will only be transferred from the treasury of the developing country to that of Japan through smaller foreign tax credits allowed in Japan. The result is that no tax benefits remain in the hands of the investors. Therefore, the tax-sparing credit system does not annul the effect of tax incentives adopted by developing countries." (Japanese Ministry of Finance, Tax Bureau, 1996, p. 122).

[8] See U.S. Senate (1957). For samples of the ensuing controversy, see Crockett (1958) and Surrey (1958).

[9] As Tillinghast (1996) notes, the Senate persists in rejecting not only treaties with "tax sparing" provisions but also those with creative alternatives. The signed, but unratified, 1967 Brazil-U.S. treaty contained a clause granting American investors an investment tax credit, for investments in Brazil, that would be used to reduce U.S. tax liabilities on foreign-source income. A similar type of investment tax credit was then available for domestic investments in the United States. The Senate refused to ratify the treaty with the investment tax credit provision. American intransigence concerning "tax sparing" is illustrated by the fact that, of the 20 OECD members with tax treaties with China, the United States is alone in not granting "tax sparing" credits (Li, 1995).

provision of "tax sparing" for investments in Pakistan would pressure the United States to provide "tax sparing" in all of its treaties with developing countries,[10] and that such concessions are unwise and excessively costly. Furthermore, the Pakistan treaty raised fears of encouraging FDI at the expense of investment in the United States.

2.2 *Effect of taxation on FDI.*

During the deliberations over Senate ratification of the Pakistan treaty, Stanley Surrey (1958) could confidently assert that there was no reliable evidence that tax-based incentives, such as those created by "tax sparing" provisions, were likely to influence the pattern of FDI. That is an appropriate summary of the quantitative literature as it existed at the time. Now, forty years later, there is a considerable body of evidence, much of it recent, that documents a sizable effect of tax policies on the location and volume of FDI. Consequently, it is reasonable to expect "tax sparing" provisions to encourage direct investment and to affect host country policies toward foreign investors.

Evidence of the effect of taxation on FDI comes in a variety of forms. Time-series studies generally find FDI levels to respond positively to available after-tax rates of return,[11] and cross-sectional studies of the location of outbound investment and the incentives facing different investors report consistently large effects of taxes.[12] There is additional evidence of the ability of parent companies to adjust the financing of their foreign affiliates and the transfer prices used in transactions between related parties in

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[10] True to this prediction, subsequent diplomatic notes with several developing countries (including China, India, and Thailand) bind the United States to provide "tax sparing" credits for investments in those countries if it ever grants "tax sparing" for investments anywhere else.

[11] See, for example, Hartman (1984), Boskin and Gale (1987), Newlon (1987), Young (1988), Slemrod (1990), and Swenson (1994).

response to tax differences, which may contribute to the appeal of locating FDI in low-tax locations.[13] While this evidence varies in quality and in persuasiveness, taken as a whole it suggests that "tax sparing" is likely to influence significantly the location and experience of FDI.

3. *"Tax Sparing" and Foreign Direct Investment.*

This section analyzes the effect of "tax sparing" on incentives for host governments to provide tax abatements, and non-tax investment incentives, for foreign investors. This is followed by a review of the available data concerning foreign direct investment by Japanese and American firms.

3.1 Behavior of host governments.

"Tax sparing" agreements encourage FDI if foreign investors receive special tax abatements from host governments that would otherwise be offset by home-country taxes. For the same reason, host governments are considerably more likely to give special tax abatements to foreign investors if their home governments grant "tax sparing." In turn, tax abatements reduce the value of attracting additional FDI, and thereby make host governments somewhat less willing to provide non-tax inducements for FDI. This section analyzes a simple model that formalizes these notions.

Consider the behavior of a government that maximizes:

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[12] See Grubert and Mutti (1991), Harris (1993), Hines and Rice (1994), Hines (1996), Devereux and Griffith (1998), and Desai and Hines (forthcoming).

[13] Hines (1997) offers an interpretive survey of this evidence and of the FDI literature.

(1)
$$\Psi \equiv B(I) + \tau Q(I,G) - cG,$$

in which I denotes the level of inbound FDI and $Q(I, G)$ is local profitability of that

investment. Inbound FDI is taxed at rate τ, so $\tau Q(I, G)$ is the local government's tax

revenue from FDI. $B(I)$ denotes the non-tax benefits of FDI to the local economy,

measured in tax-revenue-equivalent units. G is the level of public services provided by

local governments to enhance a country's attractiveness to foreign investors, and c is the

per-unit cost of providing such services.[14]

The level of foreign investment is a function of various country characteristics

and two variables under the government's control: the tax rate, τ, and the level of public

services, G. Investment can be written as $I(\tau^*, G)$, in which τ^* is the combined host- and

home-country effective rate of profit taxation, itself a function of τ. The first order

conditions characterizing interior solutions to the maximization of Ψ are:

(2)
$$\left[B'(I) + \tau \frac{\partial Q}{\partial I} \right] \frac{\partial I}{\partial \tau^*} \frac{\partial \tau^*}{\partial \tau} = -Q(I,G)$$

(3)
$$\left[B'(I) + \tau \frac{\partial Q}{\partial I} \right] \frac{\partial I}{\partial G} = c - \tau \frac{\partial Q}{\partial G}.$$

Since τ^* is the combined level of home- and host-country taxation, it can be

represented as:

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[14] It is important that c is the net cost of providing public services to attract FDI. For example, a
government-provided road might simultaneously enhance the productivity of foreign capital and offer

(4) $$\tau^* = \tau + \gamma\left[\tau^h - \tau(1-\alpha) - \tau^f \alpha\right]$$

in which τ^h is the home country tax rate and τ^f is the foreign tax rate in the absence of special abatements. The parameter γ reflects the importance of home-country taxation: $\gamma = 0$ if firms are effectively exempt from home-country taxation (either because they have excess foreign tax credits or because they have opportunities for costless and indefinite deferral), while $\gamma = 1$ if firms pay home-country taxes on any differences between domestic and foreign tax rates. In a sample of American multinational firms, the average value of γ is likely to be strictly bounded by zero and one. The parameter α denotes "tax sparing;" $\alpha = 1$ if the home country grants "tax sparing," and $\alpha = 0$ if not.

Differentiating (4),

(5) $$\frac{\partial \tau^*}{\partial \tau} = 1 - \gamma(1-\alpha),$$

which reflects that "tax sparing" is relevant only insofar as home-country taxes influence investment decisions.

Equation (5) illuminates the effect of "tax sparing" on tax rate choices by host governments, since, taking "tax sparing" to be a continuous rather than a discrete event, (5) implies that $\frac{\partial^2 \tau^*}{\partial \tau \partial \alpha} = \gamma$. "Tax sparing" increases the sensitivity of total tax burdens to host country tax rates. This, in turn, implies that "tax sparing" is likely to encourage host

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valuable services to local travelers. In such a case, c is appropriately calculated as the cost of the road net

countries to offer foreign investors special tax reductions. From (2), it is clear that, absent a large effect of "tax sparing" on investment (ignoring any induced changes in τ), "tax sparing" must be associated with reduced home country tax rates. Consider, for example, the case in which a host government does not offer any special tax abatements and the home government suddenly grants "tax sparing." If τ does not change, then "tax sparing" has no effect on I, because "tax sparing" credits are available only for special tax reductions. But as long as $\gamma > 0$, the introduction of "tax sparing" raises the value of $\frac{\partial \tau^*}{\partial \tau}$, so if (2) characterizes the host government's taxation of foreign investors prior to the introduction of "tax sparing," it cannot continue to do so once the home government grants "tax sparing" – unless τ falls.

"Tax sparing"-induced lower rates of home-country taxation are likely to be accompanied by reduced provision of government services valued by foreign investors. Lower rates of τ reduce the size of the bracketed term on the left side of (3) and increase the size of the expression on the right side of (3), thereby implying that $\frac{\partial I}{\partial G}$ must rise in response. Since, under normal circumstances, $\frac{\partial I}{\partial G}$ is a decreasing function of G, it follows that "tax sparing" is associated with lower levels of government spending. "Tax sparing" encourages host governments to reduce τ, thereby lowering the value to host governments of any additional I triggered by higher levels of G. Put differently, "tax sparing" encourages host governments to substitute tax for non-tax investment incentives.

3.2 Data.

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of the monetary benefits of enhanced local travel (the numeraire taken to be the value of tax revenue).

The model implies that "tax sparing" encourages FDI in two ways: by reducing home-country taxation of foreign-source income, and by encouraging host governments to offer special tax abatements to foreign investors. Existing Japanese and American data are sufficient (if just barely) to test the investment and tax rate implications of the model. To a certain degree, the investment incentives created by "tax sparing" agreements will be offset by a tendency to substitute tax for non-tax methods of encouraging investment by multinational firms based in countries granting "tax sparing." But since the willingness of many capital-exporting countries to grant "tax sparing" also encourages host countries to increase their default corporate tax rates, there are likely to be large differences between the tax rates paid by Japanese and American firms, and significant differences in their investment patterns as a result.

The United Nations (1993) reports accumulated stocks of outbound FDI by Japanese and American firms. Stock figures are denominated in U.S. dollars, and are distinguished by location for a large sample of countries. FDI stocks consist of accumulated debt and equity investment from parent companies plus reinvested profits of foreign affiliates. Japanese and American FDI stocks are book figures, which makes them sensitive to inflation and therefore no better than proxies for market values of FDI. Japanese and American shares of total FDI stocks are, in principle, comparable, but since the estimation sample excludes FDI in Japan and the United States, mean values of Japanese and American FDI will differ in a systematic way.[15] Data on Gross Domestic Product (GDP) are taken from the Summers-Heston database described by Summers and

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[15] In 1990, 42.0% of the Japanese FDI stock was located in the United States, while 5.0% of the American FDI stock was located in Japan. By omitting data on FDI in Japan and the United States from the sample, the mean share of U.S. FDI is certain to exceed the mean share of Japanese FDI.

Heston (1991). Table 1 presents means and standard deviations of variables used in the regressions.

Data on the foreign activities of American firms are collected by the Bureau of Economic Analysis of the U.S. Department of Commerce (BEA), which performs periodic benchmark surveys of the foreign operations of American multinational corporations.[16] BEA (1992) contains income and balance sheet information for 1989 for foreign affiliates owned at least 10% by American parents. BEA reports aggregate figures for countries in which there is substantial U.S. investment; to protect the confidentiality of survey respondents, BEA suppresses information for countries in which one or two American firms represent large fractions of total U.S. investment.

BEA reports amounts of paid-in affiliate equity, as well as the pre-tax incomes and income tax payments of American firms. It is therefore possible to construct an average income tax rate that equals the ratio of income taxes paid by local affiliates of American firms to their local pre-tax incomes. Such a calculation is based on aggregates, and may therefore overstate tax rates by including information on affiliates with tax losses. Nevertheless, it is a reliable indicator of the use of tax preferences such as special deductions, depreciation rules, carryforwards and carrybacks, tax holidays, and nonstandard income concepts.

Data on the foreign business activities of Japanese firms come from annual surveys conducted by the Japanese Ministry of International Trade and Industry (MITI), which cover foreign operations in which parent firms hold at least 10% ownership stakes.

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[16] American firms with foreign affiliates and assets exceeding $3 million are obliged to respond to the BEA survey; BEA estimates that its survey respondents have 99.6% of the foreign assets of American firms. The regression variables are constructed from BEA data on the activities of nonbank affiliates of nonbank parent firms. The BEA data are the basis of FDI studies by Grubert and Mutti (1991), Hines and Rice

Firms are not obliged to respond to these surveys, and while most do, the response rate is far from 100%.[17] Responses to the 1989 survey, tabulated in MITI (1991), constitute the Japanese data used in the empirical work.

MITI reports aggregate information for Japanese affiliates in order to preserve the confidentiality of survey respondents, but distinguishes some items by location of affiliate and industry of parent company. The MITI data include information on the paid-in equity of parent Japanese firms, the "ordinary income" of affiliates, and affiliates' after-tax profits. The Japanese translation of "paid-in equity" is "capital stock," but this balance sheet entry excludes retained earnings and is therefore comparable to the American notion of "paid-in equity."

"Ordinary income" is a Japanese accounting concept that equals the difference between income items such as net sales revenue and capital income, and expense items including interest charges and depreciation. "After-tax profits" equal "ordinary income" plus net extraordinary gains, plus net disposition of special reserves, minus corporate taxes. It is, therefore, possible to use the difference between "ordinary income" and "after-tax profits" as an indicator of the corporate tax burden facing Japanese affiliates, though this entails ignoring the (typically small) differences introduced by extraordinary gains and the disposition of special reserves.[18] More likely to be problematic are systematic differences between Japanese and American accounting conventions, making levels of Japanese and American tax burdens (thereby calculated) not exactly

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(1994), and Desai and Hines (forthcoming), from which some of the following descriptive material is drawn.

[17] For example, in the 1991 survey, MITI sent questionnaires to 3,368 companies, of which 1,789 responded. While Japanese firms with extensive foreign operations are perhaps more likely than others to respond to the MITI questionnaire, there is no way of verifying this directly.

comparable. Consequently, the empirical work focuses on differences between average tax rates paid by Japanese firms in countries with whom Japan does and does not have "tax sparing" agreements, contrasting these with differences in tax rates paid by American firms.

4. Evidence from American and Japanese Firms.

This section evaluates evidence of the impact of "tax sparing" agreements appearing in differences between the location and performance of foreign investment by American and Japanese firms.

4.1 FDI in a large cross-section.

Japanese investors exhibit a pronounced tendency to locate FDI in countries with whom Japan has "tax sparing" agreements. Table 2 presents a simple comparison of Japanese and American investment patterns. Of the 67 receiving countries for whom FDI data are available, Japan has "tax sparing" agreements with 14. The Japanese share of FDI located in a country is defined to be (FDI_i/FDI_{tot}), in which FDI_i is the stock of Japanese FDI located in country i in 1990, and FDI_{tot} is the stock of Japanese FDI located in all countries in 1990. American FDI shares for 1990 are defined analogously. The median Japanese FDI share in the 14 countries with whom Japan has "tax sparing" agreements is 0.60% and the mean Japanese FDI share is 0.94%, both of which exceed the median (0.36%) and mean (0.72%) American FDI shares in the same countries.

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[18] The calculations constrain tax rates facing Japanese and American firms to lie between 0% and 100%. Calculated tax rates omit consideration of taxes other than income taxes, since firms are eligible to claim foreign tax credits only for income taxes paid to foreign governments.

It is useful to confirm that these differences are not merely functions of Japanese and American investment patterns in countries excluded from the sample (particularly the United States and Japan), so the second row of Table 2 presents investment share information for the 53 sample countries with whom Japan does not have "tax sparing" agreements. Investment patterns in these countries differ markedly from those with whom Japan has "tax sparing" agreements. The median Japanese FDI share in this subsample is 0.02% and the mean share is 0.64%, while the American FDI share has a median of 0.12% and a mean of 1.38%.

Figure one illustrates the comparison between Japanese and American investment patterns. The darkly shaded bars in the figure represent mean shares of Japanese investment, and the lightly shaded bars mean shares of American investment. The two bars on the left describe investment shares in countries with whom Japan does not have "tax sparing" agreements, while the two bars on the right describe investment shares in countries with whom Japan does have "tax sparing" agreements.

These differences can be compared in a straightforward way in a regression context. The first column of Table 3 presents estimated coefficients from regressing differences between Japanese and American FDI shares in each of the sample countries on a constant term and a dummy variable that equals one, if Japan has a "tax sparing" agreement, and equals zero otherwise. The estimated coefficient on the dummy variable, 0.0097, indicates that differences between Japanese and American FDI shares are roughly 1% higher in countries with whom Japan has "tax sparing" agreements than they are in other countries. The regression reported in column two of Table 3 indicates that the effect of "tax sparing" on Japanese-American FDI share differences rises with the

inclusion of GDP as an explanatory variable, the estimated coefficient on the dummy variable implying that Japanese FDI shares are roughly 1.7% higher in countries with whom Japan has "tax sparing" agreements. The third column of Table 3 reports the results of a regression specification in which the "tax sparing" dummy variable is interacted with GDP; again, "tax sparing" is associated in a significant way with higher FDI levels. Evaluated at the mean of ln(GDP), the coefficient implies that "tax sparing" agreements coincide with 1.7% higher Japanese FDI shares. Since the Japanese FDI share has a sample mean of 0.71%, effects in the range of 0.97%-1.7% correspond to FDI that is 1.4-2.4 times greater than what it would have been in the absence of "tax sparing."

Japan does not grant "tax sparing" on a random basis, thereby raising the possibility that the observed correlation between FDI and "tax sparing" reflects the influence of variables omitted from the FDI equation. Countries with whom Japan has close economic or cultural ties are likely to receive unusually large fractions of Japanese FDI and might also be countries with whom Japan is inclined to conclude "tax sparing" agreements. Given the arbitrariness of most methods of identifying the closeness of bilateral relations with Japan, it can be difficult to distinguish the effect of "tax sparing" on Japanese FDI from the effect of other connections that are correlated with the presence of "tax sparing" agreements.

An alternative method is to use "tax sparing" agreements between the United Kingdom and various developing countries as instruments for "tax sparing" agreements that involve Japan. The United Kingdom is a major capital exporter, has a tax system that resembles Japan's, and is similarly inclined to include "tax sparing" provisions in its bilateral treaties with developing countries. The advantage of using U.K. "tax sparing"

provisions as proxies for Japanese provisions is that the United Kingdom has economic

and cultural ties that differ from Japan's, and U.K. tax treaty patterns are therefore less

likely to be influenced by important variables that are omitted from the Japanese FDI

equation. Table 4 presents information on the countries with whom Japan and the United

Kingdom had "tax sparing" arrangements as of 1990. Both countries exhibit a tendency

to offer "tax sparing" for investments in major developing countries, but there are some

differences between their country coverages.

Table 5 presents instrumental variables estimates of the FDI equations reported in

Table 2, with a 0-1 dummy variable indicating the presence of a U.K. "tax sparing"

agreement serving as an instrument for Japanese "tax sparing" agreements. The results

are somewhat more dramatic than those reported in Table 3: the estimated effect of

Japanese "tax sparing" remains significant, and is now of the order of 3% differences in

FDI shares.

4.2 "Tax sparing" and tax rates.

The model analyzed described in Section 3 implies that foreign investors are

likely to receive fiscal inducements in the form of reduced taxes in situations in which

home countries grant "tax sparing" credits. This section compares the experiences of

Japanese and American firms in order to test this implication of the model.

Table 6 distinguishes the average tax rates faced by Japanese and American firms

in sample countries with whom Japan has "tax sparing" agreements and those with whom

Japan does not have "tax sparing" agreements. Aggregate tax burdens are quite

consistent with the model's implications. In the seven countries in the sample with

whom Japan has "tax sparing" agreements, Japanese firms face average tax rates of 28%, as compared with 32% for American firms. Sample medians differ more widely: the average Japanese tax rate in the median country is 23%, while the average American tax rate in the median country is 39%.

Comparison of the average foreign tax burdens of American and Japanese firms can be highly problematic due to differences in their tax treatment by host governments as well as differences in national accounting conventions. The most useful way to frame the tax rate information reported in the first row of Table 6 is to contrast it with evidence of average tax rates faced by American and Japanese firms in other countries. The second row of Table 6 reports this information, which suggests that, in countries with whom Japan does not have "tax sparing" agreements, Japanese firms report significantly higher average tax rates than do American firms. The average foreign tax rate faced by Japanese firms in sample countries with whom Japan does not have a "tax sparing" agreement is 48%, while the corresponding average tax rate faced by American firms is 29%. Median tax rates are 53% and 36%, respectively. These data suggest that some combination of national accounting practices, differences in the way that foreign affiliates are financed, and other business practices that enable firms to avoid local taxes, tend to elevate the calculated tax rates faced by Japanese firms compared to their American counterparts. These differences make more striking the evidence of lower tax rates faced by Japanese firms in countries with whom Japan has "tax sparing" agreements.

Figure two presents these differences graphically. The darkly shaded bars in the figure represent average tax rates paid by Japanese firms, and the lightly shaded bars average tax rates paid by American firms. The two leftmost bars describe tax rates in

countries with whom Japan does not have "tax sparing" agreements, while the two rightmost bars describe tax rates in countries with whom Japan does have "tax sparing" agreements.

Table 7 presents estimates of the effect of "tax sparing" on average tax rate differences. The OLS estimates in column one confirm that the differences apparent in Table 6 are statistically significant: a "tax sparing" agreement with Japan is associated with Japanese tax rates that are 23% lower than those faced by American firms. While the small sample size (only 18 observations) is unfortunate, it is worth bearing in mind that these 18 countries receive 66% of Japanese FDI not bound for the United States. Inclusion of GDP as a regressor changes the results very little, as the results reported in column two indicate. Using the existence of a "tax sparing" agreement with the United Kingdom as an instrument for Japanese "tax sparing" reduces both the size and the statistical significance of the estimated effect of "tax sparing," as indicated by the IV results reported in columns 3-4. While the estimates continue to imply a large (13%) effect of "tax sparing" on tax rate differences between Japanese and American firms, this difference is no longer significant in the IV regressions. At least in part, this is the product of using an IV procedure on such a small sample.

4.3. "Tax sparing" and equity investments.

From the evidence reported in section 4.1 it is clear that Japanese firms are more inclined than are American firms to locate FDI in countries with whom Japan has "tax sparing" agreements. FDI equals equity and debt flows from parent firms plus the reinvested profits of local affiliates. "Tax sparing" agreements will, therefore, encourage

Japanese FDI even if the agreements affect only the reinvested profits of Japanese affiliates. Suppose that affiliates routinely reinvest a certain fraction of their after-tax profits. If "tax sparing" agreements prompt host governments to reduce local taxes, then affiliates' after-tax profits will rise and so will the retained earnings component of FDI. Consequently, the observed correlation between "tax sparing" agreements and FDI does not necessarily imply that "tax sparing" encourages equity investments. Since the determinants of equity capital flows are of independent interest, and since host countries are understandably eager to attract such flows, it is useful to consider the determinants of U.S.-Japan differences in equity investments. In addition, the equity data come in a disaggregated form that distinguishes investments by industry of affiliate. As with the tax rate information, however, the data are available for only a rather small sample of countries.

Table 8 presents data on American and Japanese shares of equity capital located in the 19 sample countries for which such data are available. Data apply to firms in manufacturing industries only.[19] Japanese firms locate an average of 2.6% of their foreign equity in the seven sample countries with whom Japan has "tax sparing" agreements, and 1.5% in the twelve countries without Japanese "tax sparing" agreements. By comparison, American firms locate an average of 1% of their foreign equity in "tax sparing" countries and 3.1% in those with whom Japan does not have "tax sparing" agreements. Similarly-signed, and somewhat more dramatic, differences appear between median equity investments of Japanese and American firms. Figure three depicts the

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[19] The sample is restricted to manufacturing industries in order to enhance the comparability of figures for Japanese and American firms and to increase the available sample size. The results reported in Tables 8-10 are very similar to those obtained using data on firms in all industries.

mean equity investment shares of Japanese (darkly shaded bars) and American (lightly shaded bars) firms in countries with and without Japanese "tax sparing" agreements.

Table 9 analyzes these data in a regression context. In the regression reported in column one, "tax sparing" is associated with a 3.2% difference between Japanese and American shares of investment in the form of equity capital. The estimated effect of "tax sparing" is 3.1% when ln(GDP) is included as a regressor (as reported in column two), as it is when "tax sparing" is interacted with ln(GDP) (as in reported in column three), and its effect evaluated at the mean value of ln(GDP). Evaluated at the mean Japanese equity investment share of 1.9%, a 3.1% difference implies that "tax sparing" is associated with Japanese equity investments that are 1.6 times greater than what they would have been in the absence of "tax sparing."

Table 10 presents the results of instrumental variables regressions in which "tax sparing" agreements with the United Kingdom serve as instruments for a Japanese "tax sparing" agreements. The results are quite similar to those reported in Table 9, with the difference that the estimated effect of "tax sparing" on equity investment rises (e.g., is 4.1% in the regression reported in column one), and the estimated standard errors are somewhat larger as well.

Industry-level data on Japanese and American equity investments are, in principle, available for numerous 2-digit industries, but various omissions make it impossible to obtain even modest sample sizes for any but six manufacturing industries. The six two-digit industries for which it is possible to make meaningful comparisons of Japanese and American equity investment shares are: food products, chemicals, metal products, non-electrical machinery, electric and electronic equipment, and transportation

equipment. Table 11 presents results of six regressions in which differences between Japanese and American equity investment shares are regressed on constants and a dummy variable indicating the presence of a Japanese "tax sparing" agreement. All of the estimated coefficients on the "tax sparing" dummy variable are positive; in three cases (chemicals, metal products, and electric and electronic equipment), they are significant at the 95% confidence level, and in two others (food products and transportation equipment), at the 90% confidence level.

While these results are, of course, consistent with all of the other available evidence of the effect of "tax sparing" on investment, the very small sample sizes make their interpretation for any particular industry quite difficult. What the results reported in Table 11 do is to clarify that the "tax sparing" evidence available from aggregate data do not reflect obvious industrial differences between Japanese and American investment patterns. Table 12 presents the results of industry-level regressions in which U.K. "tax sparing" agreements are used as instruments for Japanese "tax sparing" agreements. The estimated effects of "tax sparing" on equity investment are very similar to those reported in Table 11.

4.4 Implications.

The regression results indicate that "tax sparing" agreements have sizable effects on the location and volume of FDI, and on the tax rates faced by foreign investors. These two effects are of course related, since host-country tax reductions encourage FDI, and host governments grant tax abatements in anticipation of thereby attracting additional FDI. Estimates available in the literature (e.g., Hines and Rice, 1994) suggest that tax

rate reductions of 23% should stimulate roughly 80% greater FDI. But these estimates are based on the behavior of American firms that are not entitled to claim "tax sparing" credits for host-country tax reductions. "Tax sparing" increases, possibly manyfold, the sensitivity of FDI to host-country taxes. Consequently, the finding that "tax sparing" is associated with 140%-240% greater FDI, or roughly double the effect that would have been predicted on the basis of tax rate differences and in the absence of "tax sparing" credits, is quite consistent with the earlier literature.

5.   Conclusion.

Most high-income capital-exporting countries, including Japan, provide "tax sparing" for investments in developing countries. The United States steadfastly refuses to do so, and Japanese and American FDI experiences differ as a consequence. Japanese firms are significantly more likely than American firms to concentrate their outbound FDI, and its equity component, in countries with whom Japan has "tax sparing" agreements. Host government policies are also affected: Japanese firms are taxed at lower rates than are American firms in countries with whom Japan has "tax sparing" agreements. These differences persist when "tax sparing" agreements with the United Kingdom are used as instruments for Japanese "tax sparing" agreements.

The argument that "tax sparing" is unlikely to influence FDI patterns is inconsistent with this evidence and with a larger literature that documents the effect of taxation on the activities of multinational firms. There is a more basic question, which this paper does not directly address, of the desirability of encouraging FDI in this way. In order to answer this question, it is necessary to evaluate not only the likely effects of "tax

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sparing" on levels of FDI and the policies of host governments, but also the effects of "tax sparing" on tax compliance and tax complexity, its impact on ongoing treaty negotiations, the effect of outbound FDI on domestic economic performance, and the desirability of enacting major tax provisions through treaties rather than tax legislation. For more than 40 years, the U.S. Senate has held that these considerations (and possibly others) imply that it is not in the interest of the United States to grant "tax sparing" in any of its treaties. In practice, this decision appears to be partly responsible for the relatively modest levels of American investment in developing countries.

References.

Altshuler, Rosanne and T. Scott Newlon, The effects of U.S. tax policy on the income repatriation patterns of U.S. multinational corporations, in: Alberto Giovannini, R. Glenn Hubbard, and Joel Slemrod, eds. *Studies in international taxation* (Chicago: University of Chicago Press, 1993), 77-115.

Altshuler, Rosanne, T. Scott Newlon, and William C. Randolph, Do repatriation taxes matter? Evidence from the tax returns of U.S. multinationals, in: Martin Feldstein, James R. Hines Jr., and R. Glenn Hubbard, eds. *The effects of taxation on multinational corporations* (Chicago: University of Chicago Press, 1995), 253-272.

Boskin, Michael and William G. Gale, New results on the effects of tax policy on the international location of investment, in: Martin Feldstein, ed. *The effects of taxation on capital accumulation* (Chicago: University of Chicago Press, 1987), 201-219.

Calvo, Guillermo A., Leonardo Leiderman, and Carmen M. Reinhart, Inflows of capital to developing countries, *Journal of Economic Perspectives*, Spring 1996, *10*(2), 123-139.

Crockett, Joseph P., "Tax sparing": A legend finally reaches print, *National Tax Journal*, June 1958, *11*(2), 146-155.

Desai, Mihir A. and James R. Hines Jr., "Basket" cases: Tax incentives and international joint venture participation by American multinational firms, *Journal of Public Economics*, forthcoming.

Devereux, Michael P. and Rachel Griffith, Taxes and the location of production: Evidence from a panel of US multinationals, *Journal of Public Economics*, June 1998, *68*(3), 335-367.

Grubert, Harry and John Mutti, Taxes, tariffs and transfer pricing in multinational corporate decision making, *Review of Economics and Statistics*, May 1991, *73*(2), 285-293.

Harris, David G., The impact of U.S. tax law revision on multinational corporations' capital location and income-shifting decisions, *Journal of Accounting Research*, 1993, *31* (Supplement), 111-140.

Hartman, David G., Tax policy and foreign direct investment in the United States, *National Tax Journal*, December 1984, *37*(4), 475-487.

Hartman, David G., Tax policy and foreign direct investment, *Journal of Public Economics*, February 1985, *26*(1), 107-121.

Hines Jr., James R., The flight paths of migratory corporations, *Journal of Accounting, Auditing, and Finance*, Fall 1991, *6*(4), 447-479.

Hines Jr., James R., Credit and deferral as international investment incentives, *Journal of Public Economics*, October 1994, *55*(2), 323-347.

Hines Jr., James R., Altered states: Taxes and the location of foreign direct investment in America, *American Economic Review*, December 1996, *86*(5), 1076-1094.

Hines Jr., James R., Tax policy and the activities of multinational corporations, in: Alan J. Auerbach, ed. *Fiscal policy: Lessons from economic research* (Cambridge, MA: MIT Press, 1997), 401-445.

Hines Jr., James R. and R. Glenn Hubbard, Coming home to America: Dividend repatriations by U.S. multinationals, in: Assaf Razin and Joel Slemrod, eds. *Taxation in the global economy* (Chicago: University of Chicago Press, 1990), 161-200.

Hines Jr., James R. and R. Glenn Hubbard, Appendix, in: Martin Feldstein, James R. Hines Jr. and R. Glenn Hubbard, eds. *Taxing multinational corporations* (Chicago: University of Chicago Press, 1995), 103-106.

Hines Jr., James R. and Eric M. Rice, Fiscal paradise: Foreign tax havens and American business, *Quarterly Journal of Economics*, February 1994, *109*(1), 149-182.

Japanese Ministry of Finance, Tax Bureau, *An outline of Japanese taxes, 1996* (Tokyo: Japanese Ministry of Finance, 1996).

Japanese Ministry of International Trade and Industry, Industrial Policy Bureau, Multinational Firm Division, *Kaigai toshi tokei soran [Compendium of foreign investment statistics]* (Tokyo: Ministry of Finance Printing Office, 1991).

Li, Jinyan, China's tax treaties and their impact on foreign investment, *Tax Notes International*, June 5, 1995, *10*(23), 1891-1911.

Newlon, Timothy Scott, *Tax policy and the multinational firm's financial policy and investment decisions*, Ph.D. dissertation, Princeton University, 1987.

Sinn, Hans-Werner, Taxation and the birth of foreign subsidiaries, in: H. Heberg and N.V. Long, eds. *Trade, welfare and economic policies: Essays in honor of Murray C. Kemp* (Ann Arbor, MI: University of Michigan Press, 1993), 325-352.

Slemrod, Joel, Tax effects of foreign direct investment in the United States: Evidence from a cross-country comparison, in: Assaf Razin and Joel Slemrod, eds. *Taxation in the global economy* (Chicago: University of Chicago Press, 1990), 79-117.

Summers, Robert and Alan Heston, The Penn world table (mark 5): An expanded set of international comparisons, *Quarterly Journal of Economics*, May 1991, *106*(2), 327-368.

Surrey, Stanley S., The Pakistan tax treaty and "tax sparing," *National Tax Journal*, June 1958, *11*(2), 156-167.

Swenson, Deborah L., The impact of U.S. tax reform on foreign direct investment in the United States, *Journal of Public Economics*, June 1994, *54*(2), 243-266.

Tillinghast, David R., U.S. tax treaty issues, *Tax Notes International*, August 19, 1996, *13*(8), 625-640.

United Nations, *World investment directory 1992: Foreign direct investment, legal framework and corporate data. Volume 3: Developed countries* (New York: United Nations, 1993).

United Nations, *World investment report 1997: Transnational corporations, market structure, and competition policy* (New York: United Nations, 1997).

United States Senate, Committee on Foreign Relations, *Double taxation convention with Pakistan: Hearings before the Senate Committee on Foreign Relations*, 85th Congress, 1st Session (Washington, DC: U.S. Government Printing Office, 1957).

Young, Kan H., The effects of taxes and rates of return on foreign direct investment into the United States, *National Tax Journal*, March 1988, *41*(1), 109-121.

Figure 1
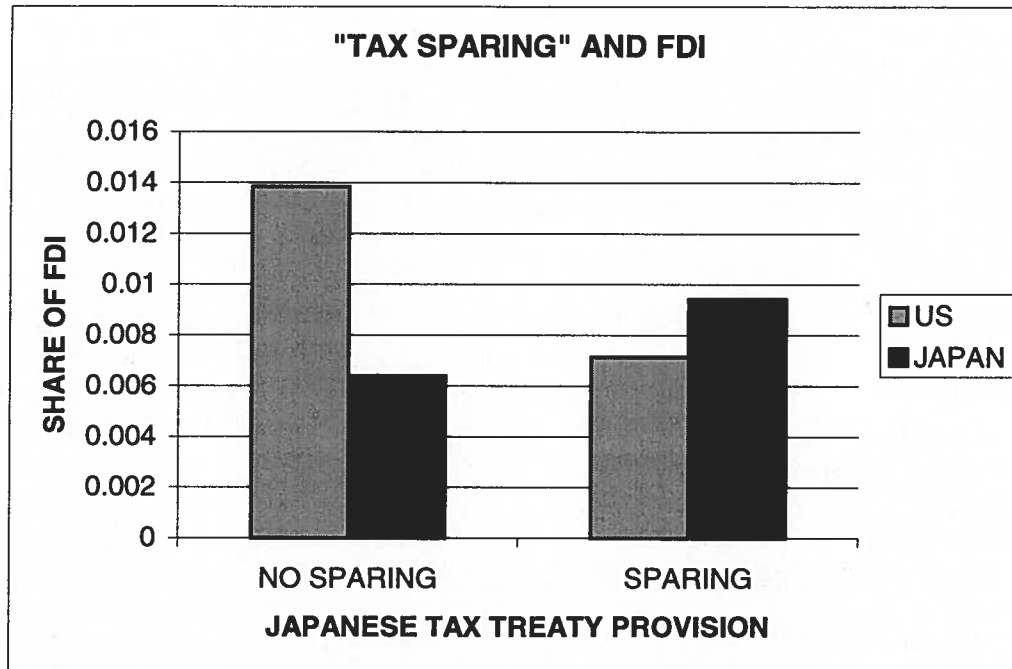
Note to Figure 1: The figure presents mean FDI shares of American and Japanese firms. FDI shares are ratios of FDI stocks in 1990 to total stocks of outbound FDI by source countries. Lightly shaded bars depict average FDI shares of American firms, and darkly shaded bars depict average FDI shares of Japanese firms. The two bars on the left describe FDI shares in countries with whom Japan does not have "tax sparing" agreements, while the two bars on the right describe FDI shares in countries with whom Japan does have "tax sparing" agreements.

Figure 2
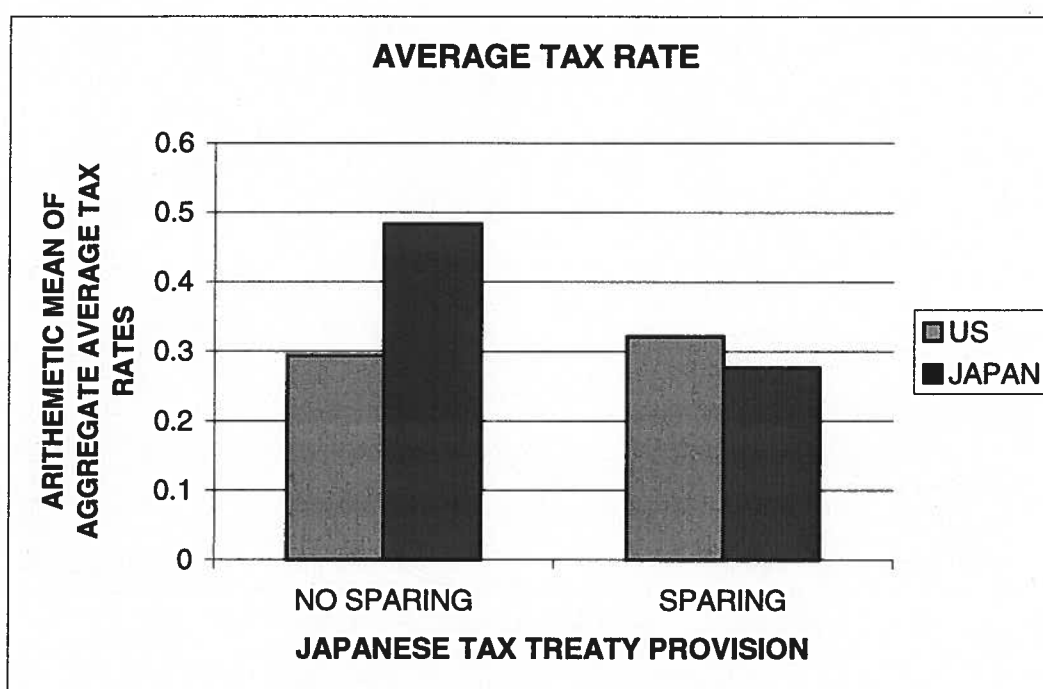
Note to Figure 2: The figure presents average tax rates paid by American and Japanese firms. Tax rates are ratios of income taxes paid in 1989 to total pretax income. Lightly shaded bars depict average tax rates paid by American firms, and darkly shaded bars depict average tax rates paid by Japanese firms. The two bars on the left describe tax rates in countries with whom Japan does not have "tax sparing" agreements, while the two bars on the right describe tax rates in countries with whom Japan does have "tax sparing" agreements.

Figure 3

"TAX SPARING" AND EQUITY INVESTMENT
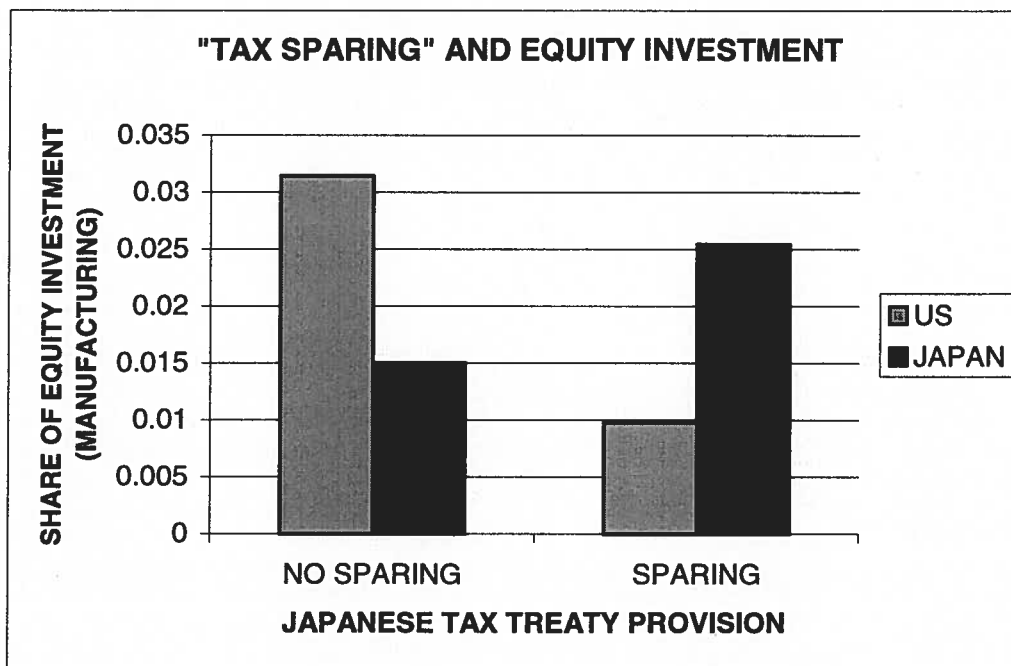
Note to Figure 3: The figure presents mean equity investment shares of American and Japanese firms in manufacturing industries. Equity investment shares are ratios of stocks of paid-in equity in 1989 to total foreign equity investment stocks of source countries. Lightly shaded bars depict average equity investment shares of American firms, and darkly shaded bars depict average equity investment shares of Japanese firms. The two bars on the left describe equity investment shares in countries with whom Japan does not have "tax sparing" agreements, while the two bars on the right describe equity investment shares in countries with whom Japan does have "tax sparing" agreements.

Table 1

Means and Standard Deviations of Regression Variables

	Variable	Mean	Standard deviation	Number of obs.
FDI Sample (Tables 3, 5)	Japan FDI share minus U.S. FDI share	-0.005269	0.023243	67
	"Tax sparing"	0.22388	0.41999	67
	ln(GDP)	18.0559	1.6787	67
	"Tax sparing" × ln(GDP)	3.9464	7.7661	67
Tax rate sample (Table 7)	Japan tax rate minus U.S. tax rate	0.08548	0.22381	18
	"Tax sparing"	0.44444	0.51131	18
	ln(GDP)	19.7114	1.0179	18
	"Tax sparing" × ln(GDP)	7.5464	9.7638	18
Equity investment sample (Tables 9-10)	Japan equity share minus U.S. equity share	-0.002896	0.021906	19
	"Tax sparing"	0.42105	0.50726	19
	ln(GDP)	19.6060	1.0907	19
	"Tax sparing" × ln(GDP)	7.1492	9.6454	19

Note to Table 1: The table presents means and standard deviations of variables used in the regressions. FDI shares are ratios of FDI stocks in 1990 to total stocks of outbound FDI by source countries. Tax rates are ratios of income taxes paid in 1989 to total pretax income. Equity investment shares are ratios of stocks of paid-in equity in 1989 to total foreign equity investment stocks of source countries. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise.

Table 2
FDI Shares

	Japan	United States
"Tax sparing" (n=14)	median: 0.601% mean: 0.942 (s.d: 1.06)	median: 0.358% mean: 0.715 (s.d: 0.988)
No "tax sparing" (n=53)	median: 0.0219% mean: 0.640 (s.d: 1.54)	median: 0.124% mean: 1.38 (s.d: 3.29)

Note to Table 2: The table presents medians, means and standard deviations of Japanese and American FDI shares in two groups of countries in 1990: those with whom Japan has "tax sparing" agreements (14 countries), and those with whom Japan does not have "tax sparing" agreements (53 countries). Entries are percentages. FDI shares are ratios of FDI stocks in 1990 to total stocks of outbound FDI by source countries. Median FDI shares are observations with median values in each cell.

Table 3
FDI Shares and "Tax Sparing"

	Dependent variable: Japanese FDI share minus American FDI share		
Constant	-0.007445 (0.003538)	0.097620 (0.037801)	0.097485 (0.037076)
"Tax sparing"	0.009719 (0.004517)	0.016805 (0.006756)	
ln(GDP)		-0.005907 (0.002266)	-0.005894 (0.002220)
"Tax sparing" x ln(GDP)			0.0009296 (0.0003494)
R-squared	0.031	0.196	0.201
Number of obs.	67	67	67

Note to Table 3: The dependent variable is the difference between Japanese and American shares of respective total foreign direct investment stocks in 1990. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The table presents estimated coefficients from OLS regressions; heteroskedasticity-consistent standard errors are in parentheses.

Table 4

"Tax sparing" Agreements with Japan and the United Kingdom

Country	Japan	UK	Country	Japan	UK
ARGENTINA	No	No*	MALAYSIA[†]	SP	SP
AUSTRALIA[†]	No	No	MAURITANIA	No	No
AUSTRIA	No	No	MAURITIUS	No	SP
BANGLADESH	SP	SP	MEXICO[†]	No*	No*
BOLIVIA	No	No	MOROCCO	No	SP
BRAZIL[†]	SP	No	NETHERLANDS[†]	No	No
CAMEROON	No	No	NEW ZEALAND[††]	No	No
CANADA[†]	No	No	NIGERIA	No	SP
CHILE	No	No	NORWAY	No	No
CHINA[†]	SP	SP	PAKISTAN	SP	SP
COLOMBIA	No	No	PANAMA	No	No
COSTA RICA	No	No	PAPUA NEW GUINEA	No	SP
CYPRUS	No	SP			
DENMARK	No	No	PARAGUAY	No	No
DOMINICAN REPUBLIC	No	No	PERU	No	No
			PHILIPPINES[†]	SP	No
ECUADOR	No	No	POLAND	No	No
EGYPT	No	SP	PORTUGAL	No	SP
FINLAND	No	No	SENEGAL	No	No
FRANCE[†]	No	No	SINGAPORE[†]	SP	SP
GABON	No	No	SOUTH AFRICA	No	No
W. GERMANY[†]	No	No	SPAIN[†]	SP	SP
GHANA	No	SP	SRI LANKA	SP	SP
GREECE	No	No	SWEDEN	No	No
GUYANA	No	No*	SWITZERLAND[†]	No	No
HONG KONG[†]	No	N/A	THAILAND	SP	SP
INDIA	SP	SP	TRINIDAD & TOBAGO	No	SP
INDONESIA[†]	SP	SP			
IRAN	No	No	TUNISIA	No	SP
IRELAND	SP	No	TURKEY	No*	SP
ISRAEL	No	SP	U.K. [†]	No	N/A
ITALY[†]	No	No	URUGUAY	No	No
JAMAICA	No	SP	VENEZUELA	No	No*
KENYA	No	SP	ZAMBIA	SP	SP
KOREA, REP. [†]	SP	SP	ZIMBABWE	No	No

Note to Table 4: The table consists of the 67 countries for whom FDI and GDP data are available for 1990. Entries in the first column indicate whether or not Japan grants "tax sparing" in 1990, and in the second column, whether or not the United Kingdom does so. The entry "SP" corresponds to "tax sparing;" the entry "No" means that "tax sparing" is not granted; and "N/A" means that "tax sparing" is not applicable (and therefore not granted) because governments do not have treaties with themselves. * Denotes countries with tax sparing agreements subsequent to 1990. † Denotes observations included in the 18-country and 19-country samples analyzed in Tables 6-10; †† denotes the observation (New Zealand) included in the 19-country sample analyzed in Tables 9-10.

Table 5
FDI Shares and "Tax Sparing," IV Specification

Dependent variable: Japanese FDI share minus American FDI share			
Constant	-0.012186 (0.005503)	0.112725 (0.040895)	0.116498 (0.041754)
"Tax sparing"	0.030895 (0.013881)	0.030150 (0.012128)	
ln(GDP)		-0.006909 (0.002482)	-0.0071516 (0.0025396)
"Tax sparing" x ln(GDP)			0.0018653 (0.0007268)
Number of obs.	67	67	67

Note to Table 5: The dependent variable is the difference between Japanese and American shares of respective total foreign direct investment stocks in 1990. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The table presents estimated coefficients from instrumental variables regressions in which British "tax sparing" agreements are used as instruments for Japanese "tax sparing" agreements. Heteroskedasticity-consistent standard errors are in parentheses.

Table 6
Tax Rates

	Japan	United States
"Tax sparing" (n=7)	median: 22.5% mean: 27.7 (s.d: 2.02)	median: 38.5% mean: 32.2 (s.d: 18.9)
No "tax sparing" (n=11)	median: 52.6% mean: 48.3 (s.d: 26.5)	median: 35.8% mean: 29.4 (s.d: 12.2)

Note to Table 6: The table presents medians, means and standard deviations of Japanese and American average tax rates in two groups of countries in 1989: those with whom Japan has "tax sparing" agreements (7 countries), and those with whom Japan does not have "tax sparing" agreements (11 countries). Entries are percentages. Tax rates are ratios of income taxes paid in 1989 to total pretax income. Median tax rates are observations with median values in each cell.

Table 7
Tax Rates and "Tax Sparing"

	Dependent variable: Japanese tax rate minus American tax rate			
	OLS	OLS	IV	IV
Constant	0.18962 0.05954	-0.43658 (0.86044)	0.14474 (0.07305)	-0.71477 (0.73381)
"Tax sparing"	-0.23430 (0.09320)	-0.22076 (0.09608)	-0.13332 (0.11885)	-0.11314 (0.11744)
ln(GDP)		0.03146 (0.04330)		0.04315 (0.03781)
R-squared	0.287	0.306		
Number of obs.	18	18	18	18

Note to Table 7: The dependent variable is the difference between host-country tax rates facing Japanese and American firms in 1989. Tax rates are ratios of income taxes paid in 1989 to total pretax income. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The first two columns present estimated coefficients from OLS regressions. Columns three and four present estimated coefficients from instrumental variables regressions in which British "tax sparing" agreements are used as instruments for Japanese "tax sparing" agreements. Heteroskedasticity-consistent standard errors are in parentheses.

Table 8
Equity Investment Shares

	Japan	United States
"Tax sparing" (n=7)	median: 2.65% mean: 2.55 (s.d: 1.27)	median: 0.401% mean: 0.978 (s.d: 1.32)
No "tax sparing" (n=12)	median: 0.743% mean: 1.50 (s.d: 1.54)	median: 2.48% mean: 3.14 (s.d: 2.70)

Note to Table 8: The table presents medians, means and standard deviations of Japanese and American shares of equity investment in two groups of countries in 1989: those with whom Japan has "tax sparing" agreements (7 countries), and those with whom Japan does not have "tax sparing" agreements (12 countries). Entries are percentages. Equity investment shares are ratios of stocks of paid-in equity in 1989 to total foreign equity investment stocks of source countries. Median investment shares are observations with median values in each cell.

Table 9
Equity Investment Shares and "Tax Sparing"

Dependent variable: Japanese equity investment share minus American equity investment share

Constant	-0.016399 (0.004706)	0.108494 (0.047536)	0.115843 (0.044455)
"Tax sparing"	0.032069 (0.006924)	0.030605 (0.006639)	
ln(GDP)		-0.006339 (0.002411)	-0.006616 (0.002286)
"Tax sparing" x ln(GDP)			0.001534 (0.000368)
R-squared	0.551	0.650	0.606
Number of obs.	19	19	19

Note to Table 9: The dependent variable is the difference between Japanese and American equity invesment shares in manufacturing industries in 1989. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The table presents estimated coefficients from OLS regressions; heteroskedasticity-consistent standard errors are in parentheses.

Table 10
Equity Investment Shares and "Tax Sparing," IV Specification

Dependent variable: Japanese equity investment share minus American equity investment share

Constant	-0.019994 (0.005629)	0.096699 (0.059393)	0.091997 (0.078644)
"Tax sparing"	0.040606 (0.008303)	0.039028 (0.008551)	
ln(GDP)		-0.005918 (0.002958)	-0.0057752 (0.0039112)
"Tax sparing" x ln(GDP)			0.0025648 (0.0007048)
Number of obs.	19	19	19

Note to Table 10: The dependent variable is the difference between Japanese and
American equity invesment shares in manufacturing industries in 1989. "Tax sparing" is
a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The
table presents estimated coefficients from instrumental variables regressions in which
British "tax sparing" agreements are used as instruments for Japanese "tax sparing"
agreements. Heteroskedasticity-consistent standard errors are in parentheses.

Table 11
"Tax Sparing" and Equity Investment by Industry

Dependent Variable: Japanese equity investment share minus American equity investment share

Industry	Constant	"Tax sparing"	R-squared	No. of obs.
Food Products	-0.046152 (0.021636)	0.060704 (0.027808)	0.337	10
Chemicals	-0.027949 (0.009784)	0.059861 (0.014118)	0.577	15
Metal Products	-0.028922 (0.015063)	0.071336 (0.029844)	0.337	14
Non-electric Machinery	-0.008548 (0.009247)	0.002025 (0.010235)	0.002	11
Electric Equipment	-0.035529 (0.009245)	0.049279 (0.011971)	0.739	8
Transportation Equipment	-0.000949 (0.007879)	0.018457 (0.010084)	0.224	11

Note to Table 11: The dependent variables are differences between Japanese and American equity invesment shares in each of the six indicated two-digit manufacturing industries in 1989. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The table presents estimated coefficients from OLS regressions; heteroskedasticity-consistent standard errors are in parentheses.

Table 12
"Tax Sparing" and Equity Investment by Industry, IV Specification

Dependent variable: Japanese equity investment share minus American equity investment share			

Industry	Constant	"Tax sparing"	Number of Observations
Food Products	-0.043827 (0.024629)	0.054889 (0.048381)	10
Chemicals	-0.028804 (0.011315)	0.061465 (0.019402)	15
Metal Products	-0.021615 (0.018839)	0.045763 (0.023065)	14
Non-electric Machinery	-0.008548 (0.009247)	0.002025 (0.010235)	11
Electric Equipment	-0.035529 (0.009245)	0.049279 (0.011971)	8
Transportation Equipment	-0.002761 (0.008232)	0.023440 (0.011714)	11

Note to Table 12: The dependent variables are differences between Japanese and American equity invesment shares in each of the six indicated two-digit manufacturing industries in 1989. "Tax sparing" is a dummy variable that equals one if Japan grants "tax sparing" and zero otherwise. The table presents estimated coefficients from instrumental variables regressions in which British "tax sparing" agreements are used as instruments for Japanese "tax sparing" agreements. Heteroskedasticity-consistent standard errors are in parentheses.