

Taxation of Income of Multinational Corporations: The Case of the United States Petroleum Industry

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Development Discussion Paper: 1975-05

Abstract

The rising importance of multinational corporations in world commerce has engendered increasing concern with their implications for United States tax policy. In this paper an analysis is made of the United States income taxation of the foreign operations of the United States petroleum industry, which includes some of the largest and most important of the multinational corporations.

Keywords: Taxation, tax policy, Petroleum Industry, Multinational Corporations

JEL Classification: H20

Published as: Glenn P. Jenkins and Brian D. Wright. (1975). Taxation of Income of Multinational Corporations: The Case of the United States Petroleum Industry. *The Review of Economics and Statistics*, Vol. 57, No. 1 (Feb., 1975), pp. 1-11.

The rising importance of multinational corporations in world commerce has engendered increasing concern with their implications for United States tax policy. In this paper an analysis is made of the United States income taxation of the foreign operations of the United States petroleum industry, which includes some of the largest and most important of the multinational corporations.

This industry is responsible for such a large share of total foreign investments made by American residents that the taxation of its foreign income merits a degree of attention which might be inappropriate for any other single industry.¹ In addition, the industry provides a good indication of the tax problems which may become more serious in other industries as they become increasingly dominated by multinational corporations.

Each of the five major U.S. petroleum corporations is a multinational corporation par excellence, exercising highly centralized control over a large capital stock dispersed over many different countries, as well as conducting a massive international trade in petroleum products, predominantly between related affiliates.² These five corporations, together with British Petroleum (B.P.), Royal Dutch Shell, and Compagnie Francaise des Petroles

(C.F.P.) have dominated the international petroleum market. Their total production of crude oil in 1971 amounted to 79% of the total crude oil produced in the Noncommunist World outside of North America. They also accounted for approximately 60% of the total production of refined products in this area.³ By comparison, the operations of the foreign affiliates of all other United States oil companies are equal to only about 13% of the production and 6% of the refining of the foreign affiliates of the five largest.⁴

Our analysis commences with an outline in section I of the present U.S. system of taxing foreign income, with special reference to petroleum corporations. This is followed in section II by an empirical analysis of the investment incentives inherent in the international tax environment within which United States petroleum corporations operate. In section III we estimate the loss of income tax revenues by foreign consuming countries due to the shifting of income between affiliates of U.S. petroleum corporations. Finally, in section IV we address the question of whether, given the present international tax situation, foreign investment in petroleum activities has a higher rate of return to U.S. investors and to the nation as a whole, than alternative corporate investments, both domestic and foreign.

I. Structure of Present U.S. Tax System

The United States approach to the taxation of foreign income represents an attempt to embrace a number of different principles of inter-

Received for publication January 23, 1974. Revision accepted for publication April 11, 1974.

* We wish to thank the Ford Foundation, Energy Policy Project for financial assistance in the initial stages of this research, also Gerard Brannon, George Kopits, and an anonymous referee for their comments, with the usual caveat.

¹ The book value of U.S. direct investments in foreign petroleum affiliates was 26.4 billion dollars, or 28.1% of total U.S. foreign direct investment in 1972. See U.S. Department of Commerce (1973).

² The five major companies include Standard Oil of New Jersey, Texaco, Gulf, Standard Oil of California and Mobil.

³ Organization of Petroleum Exporting Countries (1971). The British Petroleum Co. (1972). M. A. Adelman (1973) pp. 78-100.

⁴ U.S. Congress, Joint Economic Committee (1971) pp. 14-19.

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national tax-base integration. It recognizes the *residence principle* in that it taxes the global income of U.S. individuals and U.S. incorporated companies, except for the undistributed profits from investments in their foreign subsidiaries. At the same time, it recognizes the *source of income* rule which, as commonly defined in tax treaties, allows a foreign country to tax the income of any permanent establishment within its borders, as long as there is no discrimination between foreign and domestic ownership.⁵

Finally, the United States attempts to follow the principle of *capital export neutrality*, which stipulates that taxes should not interfere with the allocation of United States investment between countries.⁶ According to this principle, the net total of all taxes due per dollar of investment income should be the same, regardless of the country of source.

The United States has attempted to implement capital export neutrality by means of the foreign tax credit, designed to prevent "double taxation" of income earned abroad. The United States taxpayer is allowed to credit most foreign income taxes against the United States income tax liability on foreign (but not domestic) income rather than claim such foreign taxes paid as a deduction from foreign taxable income. This foreign tax credit is limited to the amount of the United States tax liability, so that the taxpayer pays, in toto, the higher of the United States or foreign tax rates on this foreign income. This limitation may take either of two forms, per country or overall, but the same method of limitation must be used by a United States parent corporation on income from all its foreign affiliates. Under the per country limitation, the U.S. tax paid by a U.S. parent on income from a foreign country is the difference between the U.S. tax liability and tax credits generated in that country alone; excess credits cannot be used against U.S. tax liabilities on income from other countries.⁷

A United States parent corporation has the

option of moving from the per country limitation method to the overall limitation method. Such a move is generally irreversible for any parent corporation.⁸ Using the overall limitation method, the United States taxable income (and losses) from all foreign sources are pooled, as are all foreign taxes, and one computation is performed using this pooled data.

Under both types of limitation creditable foreign taxes in excess of the limitation may be carried back for two years or forward up to five years and added to creditable taxes in a year in which there is a shortage.⁹

The advantage of the overall limitation is that excess tax credits from one foreign country can be used to offset United States taxes due on income from foreign countries with effective tax rates below that of the United States. On the other hand, the per-country limitation has an offsetting advantage in that a loss in a foreign branch can be deducted from United States taxable income from domestic sources, even if profits are made elsewhere overseas.

The branch loss deduction is particularly suited to foreign oil producers in that the typical time stream of income from a new area of operation is negative for the first few years and then becomes positive. This income pattern reflects the fact that the liberal expensing provisions, which are incentives for domestic petroleum production, also apply to foreign branch activities. Intangible drilling costs, lease rentals, dry holes and some general exploration costs can be expensed as incurred instead of being treated as investment.

Historically the petroleum and mining industries have utilized the per-country limitation to a much greater extent than have manufacturing enterprises. In 1964 the foreign tax credits attributable to petroleum corporations operating under the per-country limitation amounted to 43% of the total foreign tax credits generated by all petroleum companies. In contrast, for the manufacturing sector (excluding petroleum) the corresponding figure was only 18%.¹⁰ Through time, as a company's profitable operations become more geographi-

⁵ For a discussion of these principles, see Richard A. Musgrave and Peggy B. Musgrave, "Inter-Nation Equity," chapter 4 of *Modern Fiscal Issues* edited by Richard M. Bird and John Head, University of Toronto Press 1972.

⁶ For a discussion of different concepts of tax neutrality, see R. A. Musgrave (1969) p. 254.

⁷ U.S. Master Tax Guide (1974) p. 483.

⁸ Ibid. p. 464.

⁹ Ibid.

¹⁰ U.S. Department of Treasury (1964) table 13.

cally dispersed and investments expand into downstream activities and tankers, it will generally become more profitable to move to the overall limitation so that excess tax credits from high tax countries can be used to cover income from low tax areas. By 1974 four out of the five largest U.S. petroleum companies had changed to the overall limitation method.

II. Foreign Tax Credits, Transfer Pricing and the Incentive to Invest in Foreign Petroleum Activities

The international tax liabilities of United States petroleum companies are profoundly affected by the breadth of the class of taxes accepted as creditable against United States tax liabilities. In particular, the petroleum industry is allowed to credit taxes which are designed by the major petroleum exporting countries to serve as substitutes for large royalties in collecting the economic rent from their low-cost oil reserves. These taxes are levied as income taxes, where net income for foreign taxation purposes is calculated as the difference between a nonmarket negotiated "posted price" and the per unit cost of production.¹¹ Usually a small royalty is also levied and deducted for income tax purposes as a cost of production.¹² If instead, royalties or bonus payments were used to appropriate the economic rent, as in the case of a domestic land owner in the United States, these payments could only be used as an income tax deduction rather than as a tax credit against the U.S. income tax liability of the petroleum companies.

This tax arrangement of the producing countries came into being in 1950 with the aid and encouragement of the United States Administration, in response to Saudi Arabian demands for an increased share of oil revenues. The State Department and the National Security Council actively urged the U.S. Treasury to accept increased payments by the oil companies as creditable taxes, thus transferring tax revenues from the United States to the Saudi Ara-

bian government without increasing the costs borne by the companies.¹³

In the oil industry, where many international transactions occur between related affiliates, transaction prices may be manipulated to shift profits between countries in order to minimize total tax liabilities of the integrated corporations. By calculating taxable income using the posted price, petroleum producers have protected their oil revenues from such practices.

Consumer countries also recognize the importance of controlling revenue losses due to price manipulation in transactions between related affiliates. The U.S. Treasury stipulates that the price used for calculating U.S. taxable income in crude oil transactions between a producing affiliate and a related affiliate be constructed from the sum of production costs, payments to the producing country government, and a per-barrel profit allowance.¹⁴ Some other consumer countries also adopt this price, which may differ from both the posted price and the free market price, in calculating taxable income.

The international income tax position of the foreign operations of the United States petroleum industry is shown in table 1. The amount of taxes due to the United States, before foreign tax credits are deducted, is calculated by applying the United States corporation income tax rate to the taxable income by area of source (column 1).¹⁵ This tax liability is then deducted from the foreign income taxes paid (column 2) to estimate the excess foreign tax credits produced in each country (column 4).

We find that in every year since 1962 (the first for which data are available) there has been a net surplus of tax credits for the foreign

¹³ Testimony of Ambassador George McGee, U.S. Senate, Hearings, Subcommittee on Multinational Corporations (1974).

¹⁴ The depletion allowance is calculated on the well-head price derived in a similar manner but excluding any costs incurred downstream from the producing field.

¹⁵ For Western Hemisphere Trade Corporations, the reported U.S. taxable income has been reduced by a factor equal to 0.14 divided by the statutory U.S. corporation income tax rate. A large proportion of the income from the U.S. petroleum companies operating in the Western Hemisphere outside of the U.S. is covered by this provision. Therefore, the ratio of foreign taxes paid to taxable income as defined by the U.S. (column 3), overstates effective income tax rates for groups which include Western Hemisphere countries.

¹¹ In recent years the normal tax rate, previously 50%, has risen to 55 and 60%. (Petroleum Intelligence Weekly, Jan. 21, 1974, p. 6)

¹² In the early 1960's the fixed percentage royalty was generally taken as a credit against the income tax of the foreign country, but this procedure no longer exists.

TABLE 1.—TAXABLE INCOME, FOREIGN INCOME TAXES, AND FOREIGN TAX CREDITS ON
U.S. FOREIGN PETROLEUM INVESTMENTS

		1	2	3	4
Country of Source	Year	U.S. Taxable Income by Country ^e	Foreign Income Taxes Paid on U.S. Foreign Source Income	Ratio of Foreign Tax Paid to Taxable Income ^f	Excess Foreign Tax Credits ^g
(Millions of Dollars)					
All Areas	1962	1650.50	936.12	.56	120.73
	1964	2073.43	1345.05	.65	343.20
	1965 ^h	2209.24	1524.13	.69	495.08
	1966 ^h	2402.18	1763.63	.73	632.40
	1968	3147.14	2377.15	.76	767.79
Petroleum Consuming Areas ^a	1962	265.62	107.61	.41	—30.51
	1964	260.73	123.37	.47	—7.99
	1968	192.68	123.22	.64	19.18
Canada ^b	1962	129.50	48.60	.38	—18.74
	1964	180.24	69.19	.38	—20.93
	1968	173.06	70.18	.41	—12.89
Producing Areas ^c	1962	1216.45	765.52	.63	132.96
	1964	1551.06	1116.12	.72	340.61
	1968	2621.40	2132.25	.81	833.97
Tax Havens ^d	1962	22.29	2.25	.10	—9.61
	1964	19.57	1.98	.10	—7.81
	1968	40.49	2.19	.05	—16.88

^a Includes all Western Europe, Japan and Oceania.

^b Canada is listed separately as it is significant both as an importer and exporter of petroleum products.

^c Includes Indonesia, Iran, Iraq, Saudi Arabia, Kuwait, Libya, Nigeria, Trinidad, and Venezuela.

^d Includes Bermuda, Bahamas, Panama, Liberia, Puerto Rico, and other U.S. possessions.

^e U.S. Department of Treasury Statistics of Income Supplemental Report, Foreign Tax Credit, 1962 table 8; 1964 table 13; 1965 table 18; 1966 table 20; 1968 table 5.

^f Column 2 divided by column 1.

^g The surplus or deficit of foreign tax credits for All Areas was obtained from U.S. Department of Treasury op. cit.; for the individual country estimates, surplus or deficit of tax credits are calculated as follows: (column 2) — (column 1 × *t*) where *t* is: 0.52 in 1962, 0.50 in 1964, and 0.48 in 1968.

^h Disaggregated figures for these years are not available.

operations as a whole, growing from 120.73 million dollars in 1962 to 767.79 million dollars in 1968; that is, from 12.8% to 32.3% of foreign taxes paid.

From 1962 to 1968 the ratio of total taxes paid to the producing countries to U.S. taxable income recorded for these countries rose from 0.63 to 0.81.¹⁶ Since 1968 the rate of increase of creditable foreign taxes paid to producing countries has escalated due to increases in tax rates, posted prices, and the quantity of oil produced. Therefore, the excess tax credits available in 1973 will have far outstripped the 1968 total.¹⁷

¹⁶ Because income was also increasing, the aggregate tax credit carry-over was less than foreign tax credits claimed through 1968. Therefore excess credits of one year were generally absorbed in the next; it is highly probable that no excess credits have yet been lost by exceeding the five-year carry-forward period. See U.S. Department of Treasury (1964 and 1968).

¹⁷ In table 1, the excess foreign tax credits (column 4) are estimated from aggregate figures for all companies in each country. The country totals are summed into groups to save space. Individual companies may lack tax credits in certain

The magnitude of the excess foreign tax credits available to U.S. petroleum companies over these years is partly attributable to the depletion allowance, which applies to the overseas production activities of their branch affiliates. However, it has been shown elsewhere that excess tax credits would have been available in the aggregate since 1966 at the latest, even if there were no depletion allowance.¹⁸

Column 3 of table 1 shows the average rate

countries even though a net surplus is shown for a given country or area. This would only be a problem for smaller non-diversified companies, or companies choosing the per-country tax credit limitation. The latter may move tax credits from other areas by transfer pricing, or gain some of the advantages of the overall limitation by organizing foreign operations as affiliates of a foreign subsidiary.

Internal Revenue Code, Section 1503 (b), and Section 901 (e) introduced in 1969, exclude excess foreign tax credits due to the Western Hemisphere Trade Corporation deduction and the depletion allowance, respectively, from being claimed against U.S. taxes on income from other countries under the overall limitation. These exclusions do not change the qualitative conclusions as stated in the text. See Glenn P. Jenkins (1974).

¹⁸ Glenn P. Jenkins (1974).

of tax paid on recorded income in each group of countries. Except for the tax haven countries, we find that the average income tax rate levied by foreign countries on the operations of the U.S. petroleum companies is generally greater than the average corporation income tax levied by the United States.

However, these average rates may not accurately reflect the taxes collected on a dollar of income generated by new investments in a country. A corporation integrated across tax jurisdictions has the opportunity to transfer accounting income between countries to minimize total world-wide tax payments of the company. Where income produced by an investment can be transferred to another tax jurisdiction, the total tax rate paid expressed as a ratio to the value of the investment is

$$t_A = (R/K) (at_1 + (1-a)t_2) \quad (1)$$

where

- t_A is the total rate of tax generated per dollar of investment.
- R is the net income produced by the investment.
- K is the current value of the investment.
- a is the proportion of income produced by the investment which is taxed in the country of source.
- t_1 is the marginal tax rate expressed as a ratio of income taxes or equivalents to taxable income in the country of source.
- t_2 is the marginal tax rate expressed as a ratio of income taxes or equivalents in the country to which the income is transferred.

This formulation of the total tax rate shows that there are two important components determining the tax paid on income from a foreign investment. These are, first, the marginal rates of income taxation t_1 and t_2 of the two countries where the income is taxed. Second, there is the size of a or the proportion of net income which is not transferred elsewhere, but remains in the source country as taxable income. In some tax situations a can be assumed to equal one. However, in the case of the taxation of income from foreign investments, and especially those by petroleum companies, a is certainly not unity and its value is important in determining the total rate of taxation of income from a foreign investment.

The marginal tax rates t_1 and t_2 are not well approximated for the case of producing coun-

tries by the average tax rates presented in table 1, column 3. As described above, in the producing countries the tax called an income tax is a tax per barrel of crude oil produced. The "taxable income" per barrel on which the tax is levied is a negotiated amount and is not determined by true "arms-length" or market forces. In this situation if recorded profits are shifted by transfer pricing into a producing country from a consuming country, the marginal tax rate t_2 on these transferred profits is zero.

To identify the countries losing taxable income by transfer pricing and those receiving such income, we estimate the accounting rate of return and the foreign tax rate on the United States affiliates in each of the foreign countries. This same calculation is made for the foreign affiliates of the manufacturing sector excluding petroleum in order to compare the measured rates of taxation and return in the two sectors. In the absence of transfers of accounting income we would expect that the rates of return net of foreign tax of multinational corporations would be approximately equalized across countries, except for risk differentials, if these companies attempt to maximize the profits of their world-wide operations.

The U.S. Department of Commerce (1966 and 1970) provides book values of the net assets by country of foreign affiliates of U.S. petroleum and manufacturing companies, along with the value of income taxes paid to each foreign country. The ratio of income taxes paid to net assets by country is recorded in columns 1 and 4 of table 2.

To evaluate the rates of return earned by U.S. investors on their foreign investments we calculate the ratio of earnings net of foreign taxes accruing to U.S. foreign investments to the net book value of these investments in 1966 and 1970. These accounting rates of return for foreign petroleum and manufacturing investments are recorded in columns 2 and 5 of table 2.

The striking feature of the accounting rates of return for U.S. foreign petroleum investments is that in Canada, Europe, Japan, Australia, New Zealand, and South Africa we find accounting rates of return which are very much lower than average, yet investment in these

TABLE 2.—RATES OF RETURN AND EFFECTIVE TAX RATES FOR WHOLLY OWNED U.S. AFFILIATES

Country	Year	Petroleum			Manufacturing		
		Effective Rate of Income Tax Paid as Percentage of Total Assets in Foreign Country ^a	Income Net of Foreign Taxes as a Percentage of Book Value of Foreign Assets ^b	Per cent of U.S. Foreign Petroleum Investments	Effective Rate of Income Tax Paid as Percentage of Total Assets in Foreign Country ^a	Income Net of Foreign Taxes as a Percentage of Book Value of Foreign Assets ^b	Per cent of U.S. Foreign Manufacturing Investments
		1	2	3	4	5	6
All Areas	1966	10.12	11.55	100.0	4.15	9.49	100.0
	1970	10.27	14.10	100.0	4.02	10.27	100.0
Canada	1966	2.06	4.63	22.2	5.30	8.28	34.8
	1970	2.61	7.44	22.1	3.57	6.81	31.2
Europe	1966	.57	—1.84	24.5	3.78	9.57	40.3
	1970	.57	.72	25.2	4.13	11.88	42.5
United Kingdom	1966	— .10	—2.06	7.3	2.94	9.91	16.8
	1970	— .13	.76	8.5	3.57	9.18	15.5
European Economic Community	1966	.86	—1.97	12.2	4.52	9.05	20.0
	1970	.90	1.74	11.6	4.88	13.64	22.1
Other Western Europe	1966	.81	—1.20	5.1	3.00	10.98	3.4
	1970	.68	—1.62	5.1	2.29	12.45	4.9
Japan	1966	.97	5.74	2.0	5.43	16.22	1.5
	1970	n.a.	6.48	2.5	6.47	19.65	1.5
Australia, New Zealand and S. Africa	1966	1.97	3.40	4.1	3.40	11.86	6.0
	1970	n.a.	5.94	4.2	4.74	11.65	7.0
Latin America Including Caribbean	1966	12.55	14.42	21.4	3.68	10.52	15.0
	1970	15.49	10.46	18.1	3.15	10.40	14.3
Venezuela	1966	n.a.	19.98	11.8	n.a.	10.92	1.3
	1970	n.a.	16.32	8.0	n.a.	12.50	1.4
Indonesia, Middle East, Africa (excluding S. Africa)	1966	41.93	37.0	22.0	4.06	10.30	3.8
	1970	37.02	42.7	20.9	4.46	11.40	2.7
International Shipping	1966	.26	4.87	6.5	—	—	—
	1970	.52	16.86	7.7	—	—	—

^a U.S. Department of Commerce (1966, 1970). These figures are based on a sample survey. While the coverage for the petroleum industry is quite complete it is less so for the manufacturing sector.

^b U.S. Department of Commerce (1967, 1971). The income figures are evaluated net of foreign taxes but gross of U.S. taxes. Net income includes branch profits, dividends, reinvested earnings plus interest.

areas comprised 52.8% of the total foreign capital stock of the petroleum industry in 1966 and 54.0% in 1970, and was expanding in all of these countries. At the same time we find above average accounting rates of return in all the producing areas such as Venezuela, Africa and the Middle East.¹⁹ The differential between the accounting rates of return for pe-

troleum in the consuming and producing countries appears to be too great to be explained as a risk premium. In addition, a comparison of the accounting rates of return for petroleum with those for manufacturing in the petroleum consuming countries shows that the latter are greater by a wide margin.

In table 2 (columns 1 and 4) we calculate the ratio of foreign income taxes paid to total net assets by country for foreign affiliates of U.S. petroleum and manufacturing corporations for 1966 and 1970. For the petroleum industry we find a very wide range across countries in the ratio of taxes paid to the value of assets.

¹⁹ To save space we have presented the accounting rates of return for the years 1966 and 1970, for which appropriate tax data were available. The rates of return were calculated yearly from 1960 to 1970 and the relative rates of return across countries display the same pattern as the 1966 and 1970 observations.

In the petroleum consuming countries the tax revenues generated per dollar of assets are very low, even though the marginal tax rates on income recorded in these countries may be relatively high. On the other hand, in the producing countries the average tax revenues collected per dollar of assets are extremely high, while, as discussed previously, the *marginal* tax rate on profits generated elsewhere but recorded in these countries is zero.

The pattern of effective foreign tax rates for U.S. manufacturing across countries is very different from that for petroleum. While some opportunities do exist for transferring income in manufacturing from high tax areas to tax havens, the differentials between these effective rates of income tax across countries are much smaller. Effective income tax payments for manufacturing in foreign countries are concentrated in the range of 3 to 4% of the value of net assets. The pattern of accounting rates of return and taxation across countries for the foreign affiliates of the U.S. petroleum industry provides substantial evidence that income for tax purposes has been shifted from the consuming countries to the producing areas, tanker affiliates and other tax havens.²⁰ Income transferred to these areas incurs little or no foreign tax liability. By using some of the excess foreign tax credits available from taxes paid on crude production, this income can be repatriated to the United States without increasing the total U.S. income taxes paid by the parent corporation.

Where income from a foreign refining or petrochemical investment is transferred out of a foreign consuming country, it generally incurs a lower total tax bill (U.S. plus foreign tax) than would income from an identical investment if it were located in the United States and used domestically produced crude.

Whether or not a refinery or petrochemical plant located in the United States but using imported crude petroleum pays more or less taxes than one located abroad depends on the vigilance of the U.S. income tax authorities.

²⁰ Tanker affiliates are generally able to reside for tax purposes in foreign countries which levy very low income tax rates. Also, such corporations are not required to immediately repatriate income from financial investments to the United States for U.S. tax purposes as would normally be the case under the Subpart F income restrictions.

The importation of foreign crude oil into the United States provides the opportunity, unless precluded by the U.S. tax authorities, to transfer income from the downstream investments to either the producing or shipping affiliates and thus avoid paying U.S. income tax. This income can then be brought back to the United States tax-free, since the U.S. income tax liability can be completely offset against surplus foreign tax credits.

In 1972 the total imports of crude petroleum into the United States (2216.0 thousand barrels per day) represented approximately 17% of the total produced in the OPEC countries by the five largest U.S. petroleum corporations.²¹ Therefore, at the present time the potential revenue loss from income shifting due to transfer pricing of crude oil by American companies is much greater for all foreign consuming countries combined than for the United States.

The United States tax authorities have expressed greater concern over the problem of transfer pricing than have their European or Canadian counterparts.²² Unfortunately, there are no public data on the taxes paid on downstream activities in the United States which use imported crude petroleum. Therefore, we are not able to evaluate the effectiveness of the U.S. tax authorities in preventing the transfer of profits for tax purposes out of the United States. The prospect of a substantial increase in U.S. imports of petroleum in the near future will escalate the potential revenue losses to the U.S. Treasury from transfer pricing.

Prior to 1973 the restrictions on crude oil imports into the United States discouraged domestic investments designed to use imported crude oil. Also the low effective tax rate on income derived from assets in the foreign consumer countries encouraged United States oil companies to undertake downstream investment abroad. From 1966 to 1971 U.S. petroleum companies increased their net capital stock located in foreign consuming countries by 83% and 93% in refining and petrochemicals, respectively. By comparison, during this period

²¹ OPEC, (1971) p. 81.

²² Section 482 regulations covering transactions between related companies were strengthened by amendments in 1968 and 1969. See Alton (1969). Continuing concern is indicated in U.S. Department of Treasury (1973).

domestic net capital stock in refining increased 44%, and in petrochemicals increased 25%.²³ Over this period imports of refined petroleum products into the United States increased from 11.1% to 14.7% of total domestic consumption, and the trend has continued.²⁴

III. An Estimate of the Loss of Income Tax Revenues by Foreign Consumer Countries Due to Transfer Pricing Policies of U.S. Petroleum Companies

Within integrated corporations, inter-affiliate sales at non-arms-length prices are commonly used to lower their world-wide tax liabilities. This is true in both the manufacturing and the petroleum sectors. However, from table 2 we see that the foreign manufacturing affiliates of U.S. corporations consistently pay higher rates of foreign tax on income derived from operations in the foreign petroleum consuming countries than do the affiliates of U.S. petroleum corporations in these same countries. In this section we estimate for 1966 and 1970 the losses in consumer-country tax revenues attributable to the difference between the tax rates on income produced in petroleum and manufacturing, respectively.

We calculate the taxes that would have been paid by the U.S. foreign petroleum affiliates, if they had been taxed at the same rate as manufacturing, by estimating the true amount of income generated by the assets located in each country, and then multiplying this income by the ratio of foreign taxes paid to reported income from U.S. manufacturing affiliates in that country.

Given the geographic dispersion of the large integrated petroleum companies, if we assume that they seek to maximize profits we may postulate that the economic rate of return after taxes of the U.S. foreign petroleum investments has been approximately equalized across countries during the 1960's. Under this assumption the amount of income generated by the assets located in each consuming country is found by first estimating the average rate of return, after

deducting foreign taxes, on the total net foreign assets of U.S. petroleum corporations (table 2, column 2).²⁵ To this net rate of return we add the effective rate of income tax paid as a percentage of the net assets for each of the consuming countries (table 2, column 1) to give us the imputed gross rate of return by country. This is then multiplied by the net book value of U.S. foreign petroleum assets (table 3, column 1) by country to give an imputed value of the income generated from these assets (table 3, column 2).

For this short-run analysis we assume that the geographic distribution of the U.S. petroleum assets will not be immediately altered by changes in taxes. Accordingly, we use the imputed income by country as the base for calculating the tax liability of the U.S. petroleum affiliates if they were taxed like U.S. manufacturing affiliates located in the same country.

The effective rate of income tax applicable to manufacturing income from U.S. foreign investments is found by dividing the effective rate of income tax as a per cent of U.S. foreign investment in manufacturing in each country by the corresponding gross of tax rate of return on U.S. investments in manufacturing (table 2, columns 4 and 5). The resulting tax rates are presented, for 1966 and 1970, in table 3, column 4. These rates are then applied to the imputed income of U.S. foreign petroleum investments in the consuming countries (table 3, column 2) to estimate the imputed income tax liability of the U.S. petroleum producers (table 3, column 5). The difference between this amount and the value of taxes actually paid is shown in column 6.

In 1966 the U.S. petroleum industry would have paid an additional 255 million dollars in income taxes to the consuming countries if the income generated by petroleum assets had been taxed in each country at the same rate as U.S.

²³ The Chase Manhattan Bank, *Capital Investments of the World Petroleum Industry*, 1966, 1971. The foreign consuming areas include Western Europe, Western Hemisphere (excluding U.S.A. and Venezuela), and the Far East.

²⁴ OPEC, (1966) p. 85, (1972) p. 81.

²⁵ Although the multinational corporations may equalize the marginal rates of return on investment between countries the average economic rates of return may not be equalized. In these calculations we assume that the differences between the average and marginal rates of return are small. Also, no allowance is made here for risk premiums which may exist in some countries. If the magnitudes of such premiums were known, they could be built into the calculations. Later in this section we report on the results of an alternative set of calculations which allows for different rates of return across countries.

TABLE 3.—FOREIGN PETROLEUM TAX IN CONSUMING COUNTRIES IF TAXED ON IMPUTED INCOME
AT MANUFACTURING TAX RATES

Country of Source	Year	Book Value of U.S. Foreign Petroleum Investments	Imputed Income of U.S. Petroleum Investments	Foreign Income Taxes Paid by U.S. Petroleum Corporations	Rate of Foreign Income Tax on Income of U.S. Owned Manufacturing	Foreign Petroleum Income Taxes Imputed at Manufacturing Rate (4 × 2)	Additional Foreign Tax Liability of U.S. Petroleum Affiliates (5 — 3)
		1	2 Millions of U.S. Dollars	3	4	5	6
Canada	1966	3606	490.7	74.3	0.39	191.4	117.0
	1970	4809	803.5	125.5	0.34	273.2	147.7
United Kingdom	1966	1167	133.6	—1.2	0.23	30.8	32.0
	1970	1852	258.7	—2.4	0.28	72.4	74.8
European Economic Community	1966	1978	245.6	17.0	0.33	81.0	64.0
	1970	2525	377.7	22.7	0.26	98.2	75.4
Other Western Europe	1966	832	102.8	6.7	0.34	35.0	28.2
	1970	1110	164.0	7.5	0.15	24.6	17.1
Japan	1966	331	41.4	3.2	0.25	10.4	7.1
	1970	540	77.4	n.a.	0.24	18.6	n.a.
Australia, New Zealand, and S. Africa	1966	646	87.3	12.7	0.22	19.2	6.4
	1970	909	128.1	n.a.	0.28	35.9	n.a.

manufacturing affiliates. In 1970 the additional tax liability would have been in excess of 325 million dollars. For both of these years approximately 45% of the total of these additional taxes would have been paid to the Canadian government.²⁶

These calculations assume equalization of net rates of return in petroleum across countries, and so do not allow for differential risk premiums. To check the magnitude of these figures, alternative calculations were made on the assumption that the distribution of the rate of return net of foreign taxes was the same across countries for U.S. petroleum assets as for U.S. manufacturing assets. The absolute level of the rates of return on petroleum assets was adjusted upward to reflect the higher average rate of return generated by the aggregate of U.S. petroleum investments abroad in these years. These show consumer country tax losses

of about 205 million dollars in 1966 and about 240 million dollars in 1970. If one can assume that the risk premiums are the same in the petroleum and manufacturing sectors in a given country, then these figures can be regarded as lower bounds on the amount of taxes lost by consuming countries in these years.

IV. National Profitability of United States Foreign Investment in Petroleum

The stockholders of the United States petroleum companies have benefited from the fact that the foreign consuming countries have allowed the U.S. petroleum affiliates to reduce their income tax payments through transfer pricing. The lower total tax liability (foreign plus United States) allows the owners in the short run to earn a higher rate of return than they otherwise would, and provides an incentive for them to expand their foreign investments in this industry. Whether the United States as a whole has benefited from these tax-avoiding practices is a separate question.

It is economically advantageous for the United States to have its residents make investments abroad only if the rate of return from these investments net of foreign taxes, but before U.S. taxes, is greater than the rate of

²⁶ These calculations measure the greater ability of the multinational petroleum companies to avoid taxation relative to that of U.S. manufacturing in these countries. The effective tax rates for manufacturing (table 3 column 4) reflect the fact that some tax avoidance, through transfer pricing and the use of tax havens, occurs also in that sector. Therefore, our estimate of the tax avoidance of the petroleum companies is a downward biased indicator of their total tax avoidance.

return earned from investments in the United States gross of all taxes.²⁷ To evaluate whether or not foreign investments in petroleum and manufacturing meet this criterion, we estimate the real rates of return in these sectors and compare them with the real rate of return in the United States domestic corporate sector.²⁸ The real rates of return are estimated by dividing the earnings of each year by the net replacement values of the capital stocks, which are calculated by adjusting book values to reflect net replacement values at current prices.²⁹

With the available data we can estimate real rates of return only for the four years 1969 to 1972. The real rates of return, net of foreign taxes but gross of U.S. taxes, averaged over these years, are as follows. For foreign petroleum, the average return was 12.6% using adjusted earnings, or 13.4% using adjusted earnings plus royalties and fees.³⁰ Both figures are higher than 11.7%, the average for these years of the gross rates of return on domestic corporate capital stock calculated in a similar fashion by Christenson and Jorgenson (1972). The corresponding average real rates of return in foreign manufacturing (excluding petroleum) are 9.4% using adjusted earnings, and 11.9% using adjusted earnings plus royalties and fees.

Some caution should be used when comparing these rates of return as they will tend to respond to the economic cycles of the foreign and domestic economies. Ideally a comparison of these rates of return should be made over an extended period of time. However, the evidence we present here indicates that foreign investments in petroleum have generated a real economic rate of return accruing to the United States at least equal to the gross real rate of return this capital would have earned if instead it had been dispersed throughout the domestic corporate sector.

²⁷ Here we are placing an equal value on each dollar of income returned to the U.S.; we ignore differential evaluations of private returns and tax revenues. Hence we abstract from income distribution questions.

²⁸ Source of data for the rates of return on foreign investment is U.S. Department of Commerce (1973).

²⁹ The procedure for this adjustment is described in detail in Glenn P. Jenkins (1974).

³⁰ Adjusted earnings consist of branch earnings plus dividends, reinvested earnings, and interest, all evaluated net of foreign tax but before U.S. corporation taxes.

V. Conclusions

Most integrated multinational corporations are able to reduce their total tax liabilities through the arrangement of their international operations, but tax avoidance is especially pronounced in the multinational petroleum industry. Virtually no corporation income tax revenues accrue to the U.S. from its foreign petroleum investments. In addition, the total foreign income taxes paid on income from such investments to the petroleum consuming countries are much smaller than on income from equivalent U.S. manufacturing investments in these countries.

At the heart of the special tax advantages of the U.S. integrated petroleum industry is the acceptance by the U.S. Treasury of de facto royalty payments as creditable foreign income taxes. The resulting excess foreign income tax credits enhance the tax-reducing potential of both the overall tax credit limitation and transfer pricing to integrated multinational corporations, to the relative disadvantage of independent non-integrated competitors.

Although the U.S. petroleum corporations paid no U.S. tax on their foreign income, over the years 1969 to 1972 the rate of return net of foreign taxes from their foreign investments compares favorably with the gross rate of return on domestic corporate investment.

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