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INTRODUCTION

The Tax Reduction Act of 1975 (TRA)[1] changed two important components of the income tax law which apply to petroleum producers.[2] First, it repealed percentage depletion on a large proportion of crude oil and natural gas output.[3] Second, it modified the calculation and use of the foreign tax credit by U.S. international oil companies.[4] These two changes are expected to increase the taxes paid by petroleum producers, and therefore to reduce federal tax expenditures on the petroleum industry. They may also affect market variables such as the prices and outputs of crude oil and natural gas, and investment in proved oil and gas reserves. These market effects of TRA may, in turn, affect public policy objectives such as achieving national independence in energy and increasing competition in petroleum markets.

This article will examine the effects of the petroleum provisions in TRA on federal tax revenues and other economic variables, and then discuss the implications of those effects for the independence and competition objectives of energy policy. Interactions with other public policies concerning petroleum are also discussed. The partial repeal of percentage depletion will be considered in section I. Section II will examine the changes in the foreign tax credit. It is argued that the changes in percentage depletion will significantly reduce federal tax expenditures on the domestic petroleum industry. Those changes also create incentives for reductions in the following domestic economic variables: (1) crude oil and natural gas production; (2) investment in proved petroleum reserves; (3) market concentration in crude oil and natural gas production; and (4) vertical integration in the oil industry. Under present price-control policies, reductions in

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[1] Pub. L. No. 94-12 (March 29, 1975).

[2] Throughout this article, the term "petroleum" refers to crude oil and natural gas.

[3] Pub. L. No. 94-12, tit. V (March 29, 1975).

[4] *Id.*, tit. VI (March 29, 1975).

domestic petroleum production will not affect crude oil prices but will raise the prices of some refined products and intrastate natural gas; if oil and gas prices were decontrolled, TRA would not affect the prices of crude oil or refined products but would cause higher natural gas prices. The effect of TRA on energy independence is ambiguous under present policies; however, in a policy environment of no price controls, TRA would reduce energy independence.

The changes in the foreign tax credit will raise relatively little revenue, but will effectively remove a tax incentive to invest in foreign rather than domestic petroleum. Those changes are not, however, an effective response to the policy disputes over whether payments to foreign producer countries are, in fact, royalties instead of income taxes, and whether oil companies are avoiding taxes by transferring income from consumer countries to producer countries through fictitious internal pricing.

I. PARTIAL REPEAL OF PERCENTAGE DEPLETION ON OIL AND GAS PRODUCTION

This section has three parts. Subsection I.A. outlines the specific provisions in TRA which apply to the percentage depletion allowance. Subsection I.B. examines estimates of the "direct" revenue effects of the bill, which include interactions between TRA and other provisions of the tax law but do not encompass "indirect" revenue effects from changes in market behavior induced by TRA. Finally, subsection I.C. considers the changes in market variables which could occur as producers adapt to the new tax law and which would indirectly affect federal tax revenues.

A. *Specific Provisions of TRA*

Title V of TRA repeals the 22-percent percentage depletion allowance on all oil and gas production for tax years ending after December 31, 1974, except for two exemptions. First, domestic natural gas production meeting certain conditions will still qualify for percentage depletion under section 613 of the Internal Revenue Code. Second, domestic producers and royalty owners who can qualify as "independents" will be permitted percentage depletion deductions according to a schedule of maximum quantities and percentage rates which gradually phases down to a minimum floor for 1984 and later years. TRA does not change the tax treatment of "intangible drilling costs" or "dry-hole costs," which can be expensed as incurred.[5]

The natural gas exemption principally applies to domestic natural gas produced under regulated or contractually fixed prices set

[5] For a detailed discussion of percentage depletion and the expensing of intangibles and dry-hole costs, *see* Agria, *Special Tax Treatment of Mineral Industries*, in THE TAXATION OF INCOME FROM CAPITAL 77 (A. Harberger & M. Bailey eds. 1969).

prior to December 31, 1974.[6] In effect, it protects gas producers against windfall losses due to increased federal taxes not foreseen when the Federal Power Commission (FPC) set field prices[7] or when producers signed long-term contracts with pipelines. Once regulated prices have been raised by the FPC, or the terms of contracts revised, it is assumed that the tax changes introduced by TRA have been taken into account and the exemption ends. Thus, over time the natural gas exemption will diminish in importance, as the FPC adjusts regulated field prices on existing production[8] or existing contracts expire.

The exemption for independent producers has two principal features: determination of eligibility; and calculation of the benefits eligibility confers.[9] The major integrated oil companies lose percentage depletion entirely under TRA, because the independents' exemption excludes any taxpayer involved in retailing petroleum products[10] or connected with refineries which (in the aggregate) process more than 50,000 barrels of crude oil on any day during the tax year.[11] In addition, the exemption applies only to *domestic* crude oil and natural gas; percentage depletion is therefore repealed on all foreign production, of which the major integrated oil companies account for the lion's share. All other taxpayers, no matter how much petroleum they produce, qualify as independents and are thus eligible to claim percentage depletion deductions.[12]

While the independents' exemption continues the percentage depletion allowance for qualifying taxpayers, the current method of calculation differs from that under the previous section 613(b). Eligible taxpayers can claim percentage depletion on a maximum "deplet-

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[6] INT. REV. CODE OF 1954, § 613A(b). This subsection also provides, in subparagraph (1)(C), for continuation of the 22-percent depletion allowance on "any geothermal deposit in the United States or in a possession of the United States which is determined to be a gas well within the meaning of section 613(b)(1)(A).

[7] The FPC has the power to regulate the natural gas industry, including fixing reasonable rates and charges. 15 U.S.C. § 717 *et seq.* (1970).

[8] The FPC recently raised permissible field prices for "old" natural gas (gas committed to interstate pipelines before January 1, 1973), ostensibly "to compensate producers for increased taxes stemming from repeal of the depletion tax allowance last year." Wall St. J., Jan. 2, 1976, at 3, col. 2. The "compensation" was not really necessary, because such gas would have qualified for the natural gas exemption; once the higher prices take effect, of course, the exemption will end on "old" gas.

[9] INT. REV. CODE OF 1954, § 613A(c).

[10] *Id.* § 613A(d)(2).

[11] *Id.* § 613A(d)(4).

[12] "Independents' exemption" is a misnomer, insofar as the term "independent" connotes "small producer." For example, 5 CCH 1976 STAND. FED. TAX REP. ¶ 3564E.05, at 42,217, refers to "small producers and royalty owners." In fact, all nonretailers with at most minor refinery capacity—a category which includes a number of very large producers of crude oil and natural gas—are eligible for the exemption.

The definition of a "retailer" of petroleum has already become an issue in the implementation of TRA. *See* 4 TAX NOTES, No. 6, at 15 (1976).

able quantity" of crude oil and natural gas production per year,[13] at percentages of gross revenue prescribed in the bill.[14] Natural gas production is converted into crude-oil equivalents, in determining the total depletable quantity of oil and gas, at the rate of 6,000 cubic feet (6 Mcf) per barrel.[15] The gas/oil conversion factor is based on approximate relative thermal content, not relative market value. The total depletable quantity for 1975 is set at 2,000 barrels per day (bpd), or 730,000 barrels per year, of crude-oil equivalent, and it declines in annual steps of 200 bpd until it reaches the floor of 1,000 bpd, or 365,000 barrels per year, for 1980 and subsequent years.[16] While the limit on output eligible for percentage depletion is being phased down, the percentage rate applied to gross revenue remains constant at the previous level of 22 percent. Then for 1981-1983 the rate drops to 20, 18, and 16 percent respectively, and levels off at 15 percent thereafter.[17] Three extra years (1981-1983) at the 22-percent rate are allowed for "secondary or tertiary production;" such production counts, however, as part of a taxpayer's depletable quantity.[18] Natural gas output which qualifies for the natural gas exemption (discussed earlier) does not count against the depletable quantity;[19] producers with output qualifying for both the natural gas and the independents' exemptions must allocate taxable income between the two kinds of production in proportion to the respective gross revenues.

The limiting depletable quantity of oil and gas under TRA is applied to a taxpayer's total production; this is a departure from previous percentage depletion provisions, which applied to individual producing properties.[20] Similarly, TRA replaces the former 50-percent net income limitation on percentage depletion deductions for a single property[21] with a limitation of 65-percent of a taxpayer's total taxable income.[22] Compared to the previous provisions, the new limitation, with its higher percentage and broader taxable-income base, represents a less stringent constraint on percentage depletion

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[13] INT. REV. CODE OF 1954, § 613A(c)(3) defines depletable oil quantity for purposes of the independents' exemption by establishing a "tentative quantity" phase-out table.

[14] INT. REV. CODE OF 1954, § 613A.

[15] *Id.* § 613A(c)(4).

[16] *Id.* § 613A(c)(3)(B).

[17] *Id.* § 613A(c)(5). A convenient table combining depletable quantities and percentage rates under the independents' exemption, for 1975-1984+, is printed in 5 CCH 1976 STAND. FED. TAX REP. ¶ 3564E.02, at 42,215.

[18] INT. REV. CODE OF 1954, § 613A(c)(6).

[19] *Id.* § 613A(c)(1).

[20] *Compare* INT. REV. CODE OF 1954, § 613A(c)(2), *with* INT. REV. CODE OF 1954, § 613(a).

[21] INT. REV. CODE OF 1954, § 613(a).

[22] *Id.* § 613A(d)(1). "Taxable income" is computed without regard to percentage depletion deductions or loss carrybacks. Unused depletion allowances caused by the taxable-income limitation may be carried forward. *Id.* The previous 50-percent net income limitation continues to apply to gas produced under the natural gas exemption.

deductions. This is especially true for higher-cost properties on which it previously was difficult to generate enough net income to claim the full depletion benefits; to the extent higher costs are concentrated among small producers, the new taxable-income limitation in TRA will benefit chiefly small producers.

The ceiling on percentage depletion deductions imposed by the schedule of depletable quantities creates an obvious incentive to reorganize taxpayer units.[23] TRA contains two measures designed to prevent producers from qualifying for the independents' exemption simply by reorganizing. First, the exemption is denied on any interest in an oil or gas property transferred after December 31, 1974, if the property has been "proven" prior to the transfer.[24] Second, only one independents' exemption is allowed to a taxpayer, spouse and minor children; to corporations which are part of a "controlled group;" and to corporations, trusts, and estates owned by the same or "related persons."[25]

B. *Direct Revenue Effects of the Partial Repeal of Percentage Depletion*

The direct revenue effects of the percentage depletion provisions in TRA consist of the increased revenues from the changes in the tax law, less the reduction in taxes collected under other provisions which interact with percentage depletion. The direct effects ignore any revenue impacts of changes in market behavior induced by TRA. A discussion of the possible market adaptations to the bill which could cause the net revenue effects to differ from the direct effects will be deferred until the next subsection.

To estimate the direct revenue effects of the partial repeal of percentage depletion on domestic petroleum production,[26] it is necessary to estimate both the quantities of domestic oil and gas production

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[23] Consider a simple example. Suppose a taxpayer will produce exactly 2,000 bpd for the entire period of 1975-1980 inclusive. In 1980, this taxpayer will qualify for only half the percentage depletion deductions which can be claimed by two taxpayers each producing 1,000 bpd. At a price of $12.00 a barrel, the difference in percentage depletion allowances is almost a million dollars a year in 1980:

total gross revenue on 1,000 bpd (366)(1,000)($12) =	$4,392,000
percentage depletion at 22 percent	X 0.22
	$ 966,240

(The example assumes the taxable-income limitation is not effective.)

[24] INT. REV. CODE OF 1954, § 613A(c)(9). Transfer by reason of death or pursuant to a section 351 reorganization is excepted.

[25] *Id.* § 613A(c)(8). "Controlled group" is interpreted as in INT. REV. CODE OF 1954, § 1563(a), with certain exceptions. "Related persons" are defined as members of a "controlled group" or as in INT. REV. CODE OF 1954, §§ 267 or 707(b).

[26] The revenue effects of the repeal of percentage depletion on foreign production are discussed in section II, in conjunction with the changes made by TRA in the taxation of petroleum foreign-source income.

and the proportions which will qualify for the two exemptions. In addition, assumptions must be made about the market wellhead prices of the eligible oil and gas output. Finally, the interactions of percentage depletion provisions with those for the minimum tax and cost depletion must be examined. Repealing percentage depletion on a large fraction of domestic petroleum output represents the removal of a tax preference for many taxpayers; hence revenues from the minimum tax on tax-preference income will decline. Also, the increase in revenues from the partial repeal of percentage depletion will be partially offset by increased cost depletion deductions. The offset will be limited at first, because the cost-depletion bases of many existing properties are very small as a result of past percentage depletion deductions. As new properties are brought into production, however, cost depletion deductions will increase.[27]

The most complete estimates of the direct revenue effects of the partial repeal by TRA of percentage depletion on domestic petroleum production available to the authors were prepared by the United States Treasury's Office of Tax Analysis (OTA). Table 1 presents OTA's estimates for 1975-1979 of the revenue cost of the percentage depletion deductions (in excess of cost depletion) that would have been taken if the provisions of the Tax Reform Act of 1969[28] had remained in effect. Table 2 gives OTA's estimates of the revenue gain from the partial repeal of percentage depletion by TRA. The OTA estimates in Tables 1 and 2 include the interactions with the minimum-tax and cost-depletion provisions of the tax law. According to these tables, TRA reduced percentage depletion benefits to petroleum producers by about two-thirds in 1975 and will reduce them by almost four-fifths by 1977-1979, compared to what they would have been under the previous provisions. Thus the estimated reductions in federal tax expenditures on the oil and gas industry caused by the partial repeal of percentage depletion in TRA are definitely significant in both absolute and relative terms.

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[27] A useful illustration of the methodology for making revenue estimates is Brannon, *The Revenue Costs of Energy Tax Incentives: Underlying Assumptions*, 2 TAX NOTES, NO. 5, at 5 (1974) [hereinafter cited as Brannon]. That article explains the methodology behind revenue estimates for 1971, 1972 and FY 1975, for (*inter alia*) total repeal of percentage depletion and elimination of intangibles expensing, presented in 2 TAX NOTES, NO. 3, at 11 (1974). Brannon discusses the assumptions about production, prices, and interactions with the minimum tax and cost depletion; he also examines the complex link between percentage depletion and intangibles expensing.

[28] Pub. L. No. 91-172 (Dec. 30, 1969).

Table 1. *Predicted Revenue Cost of Percentage Depletion under pre-TRA Legislation*

($ million)

Year	Oil	Gas	Total
1975	1,961	512	2,473
1976	2,291	575	2,866
1977	2,528	644	3,172
1978	2,881	721	3,602
1979	3,020	812	3,832

Source: Office of Tax Analysis, U.S. Treasury

Table 2. *Predicted Revenue Gain from the Partial Repeal of Percentage Depletion by TRA*

($ million)

Year	Oil	Gas	Total
1975	1,480	150	1,630
1976	1,737	312	2,049
1977	1,926	513	2,439
1978	2,204	575	2,779
1979	2,319	649	2,968

Source: Office of Tax Analysis, U.S. Treasury

Estimates of the proportion of total oil and gas production eligible for the independents' exemption were supplied by the Independent Petroleum Association of America; that proportion starts at 24 percent in 1975 and declines gradually to 21 percent in 1979. The Treasury's revenue estimates of the total direct revenue gains and continuing revenue losses are very close to estimates made available to the authors by the Joint Committee on Internal Revenue Taxation (JCIRT). Those estimates were based on the following assumed average domestic crude oil prices (in dollars per barrel):

1975	1976	1977-1980
7.79	8.68	9.00

Since enactment of the Energy Policy and Conservation Act[29] in December 1975, the prices assumed by JCIRT are not implausible.

C. *Other Economic Effects of the Partial Repeal of Percentage Depletion on Oil and Gas*

The economic effects of the partial repeal of percentage depletion, apart from increased tax revenues, fall into three categories: effects on price, output and investment; effects on energy independence; and effects on market structure in the petroleum industry. The analysis of those effects is complicated by the existence of non-tax policies, namely, price controls and allocations.[30] Because the price controls are currently the dominant public policies affecting the petroleum industry, the tax changes in TRA will play a subordinate role In addition, certain of the effects of TRA listed above may differ depending on whether or not the price controls are effective; the controls on oil are due to be phased out by 1980, and natural gas prices may be deregulated at any time.[31] This subsection will discuss each of the three categories of tax effects in turn, pointing out where necessary the sensitivity of the analysis to the assumptions about price controls.

1. Effects on Price, Output and Investment

A useful point of departure is to examine existing empirical studies of the impact of percentage depletion on crude petroleum prices, outputs, and investment. Those studies are based on data drawn primarily from the period prior to 1972. The impact of TRA, however, will take place initially in an economic setting quite different from the setting of that period. First, the real prices of oil and other fuels have risen markedly. Second, government policies affecting energy industries have changed considerably: the oil import quota and state market-demand prorationing of the earlier periods are no longer in effect, while price controls and allocations have been imposed on crude oil producers; the FPC continues to regulate natural gas prices, but the "area rates" of the 1960's have been superseded by nationwide rate-setting. The eventual phase-out of the oil price con-

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[29] Pub. L. 94-163 (Dec. 22, 1975). This bill, which established a new basis of oil price controls for a 40-month period beginning January 1, 1976, is discussed further in subsection I.C.

[30] The Federal Energy Administration (FEA) is charged with controlling the prices of crude oil and refined products and, if necessary, allocating them. The Federal Power Commission (FPC) regulates the field or wellhead prices of natural gas shipped in interstate pipelines; state regulatory agencies are responsible for allocating gas when shortages occur.

[31] The provisions for the eventual decontrol of oil prices are contained in Title IV of the Energy Policy and Conservation Act *supra* note 29. Each house of Congress has passed a bill dealing with the deregulation of natural gas prices, but the bills differ widely in scope and substance. *See* Wall St. J., Feb. 6, 1976, at 3, col. 2.

trols envisioned in recent legislation will present yet a third economic setting. A central question in what follows is the extent to which the research findings on the effects of percentage depletion during the 1950's and 1960's can be reversed to estimate the impact of partial repeal in the 1970's and 1980's.

Compared to uniform tax treatment of petroleum corporation income, the percentage depletion allowance increases the ratio of after-tax marginal revenue to before-tax marginal revenue for producers of crude oil and natural gas.[32] On theoretical grounds, percentage depletion would be expected to increase both the quantities of crude oil and natural gas supplied by domestic producers and the amounts of inputs they use, compared to a situation with uniform (cost-depletion) tax treatment.[33] One input into crude petroleum production is proved reserves of oil and gas, which are assets acquired by investing in the drilling of oil and gas wells; percentage depletion would be expected to increase the amounts of proved reserves held by producers and the rate of investment in new reserves through drilling. Under the policies which prevailed during the period 1959-1971, one would also expect that the percentage depletion allowance tended to reduce domestic crude oil prices, because of its effect in increasing the quantity supplied.[34]

Empirical research by the present authors and others lends some support to the above hypotheses for the period ending in the early

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[32] The after-tax revenue of a crude petroleum producer is an increasing function of the rate of percentage depletion. Cox and Wright, *The Determinants of Investment in Petroleum Reserves and Their Implications for Public Policy*, 66 AMERICAN ECON. REV. equation (2) at 154 (1976) [hereinafter cited as *Petroleum Reserves*]. Since percentage depletion could only be elected at the expense of cost depletion, the gain in after-tax revenue is offset by an increase in the after-tax cost of a unit of proved reserves. *Id.*, equation (3) at 155. In a preponderance of cases, however, the offset must have been only partial, since producers elected the percentage depletion option—presumably because it was more profitable, after tax—in all but a few cases. S. MCDONALD, FEDERAL TAX TREATMENT OF INCOME FROM OIL AND GAS 17 n. 16 (1963). Brannon, *supra* note 27, at 7, suggests that the net value of percentage depletion to a petroleum producer—that is, the gross value of percentage depletion deductions minus the value of cost depletion deductions—was about 15 percent of tax liability before oil prices rose sharply in 1973-1974, and about 17 percent in 1974.

[33] Unless otherwise noted, the hypothesized effects of public policies assume that all other pertinent factors are held constant; economists refer to such effects as "partial" or "*ceteris paribus*."

[34] From 1959 to 1971, the domestic price of crude oil was protected from world market forces by the oil import quota. A major determinant of domestic crude oil supply was "market-demand prorationing," a form of production restriction practiced by Texas, Louisiana, Oklahoma, New Mexico and Kansas in order to support crude oil prices. Increasingly during the period, FPC regulation of natural gas field or wellhead prices created an excess demand, or shortage, in the market for natural gas. Given these three policies, any increase in the quantity supplied of crude oil would tend to reduce the domestic market price of oil. The other policies could, of course, have been altered to offset an oil price reduction due to percentage depletion.

1970's.[35] The empirical evidence is most clear-cut for the impact on reserves; the author's own estimates indicate that percentage depletion, along with the expensing of intangible drilling costs, had a statistically significant positive effect on the stock of proved reserves held by crude petroleum producers, and on their rate of net investment in proved reserves.[36] Preliminary estimates of the effect on the quantity of crude oil supplied, however, do not provide support for a significant effect of tax variables. The finding that percentage depletion had a statistically significant positive effect on proved reserves does not, of course, in itself constitute a finding that it was a desirable public policy. Consider, for example, the policy objective of energy independence. For that objective, the increase in proved reserves would be a benefit of percentage depletion. To evaluate the effectiveness of percentage depletion as public policy, however, would require that its social costs be compared to the costs of alternative policies for promoting energy independence. Our research suggests that percentage depletion was not a cost-effective policy in that sense.[37]

What do the above empirical findings imply about the economic impact of TRA on petroleum price, output and investment? In particular, to what extent would that impact be the reverse of the effects found for percentage depletion for the period prior to 1972? The answers to these questions turn on the significance of three factors: (1) the fact that the repeal of percentage depletion by TRA was partial, not total; (2) the change in the public policy environment from the import quota and state market-demand prorationing of the earlier period, to the free foreign trade and domestic crude-oil price controls of the present; and (3) the hazards of extrapolating empirical estimates beyond the range of observation of the variables which underlie them.

As shown above, TRA created the incentive for producers to organize the ownership of new petroleum-producing properties so as to qualify for the independents' exemption. To the extent producers actually respond to that incentive, the size composition of firms in the producing segment of the petroleum industry will be different in the

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[35] Cox and Wright, *The Cost-Effectiveness of Federal Tax Subsidies for Petroleum Reserves*, in STUDIES IN ENERGY TAX POLICY 177 (G. Brannon ed. 1975) [hereinafter cited as *Cost-Effectiveness*]; *Petroleum Reserves, supra* note 32; Cox and Wright, *Research Tasks on the Economics of Tax and Other Policies towards Petroleum*, forthcoming in *Conference on Tax Research, 1975*, United States Treasury (1976). *See also* Erickson, Millsaps, & Spann, *Oil Supply and Tax Incentives*, 2 BROOKINGS PAPERS ON ECON. ACTIVITY 449 (1974) [hereinafter cited as *Oil Supply*]; MacAvoy & Pindyck, *Alternative Regulatory Policies for Dealing with the Natural Gas Shortage*, 4 BELL J. OF ECON. & MANAGEMENT SCIENCE 454 (1973); Pindyck, *The Regulatory Implications of Three Alternative Econometric Supply Models of Natural Gas*, 5 BELL J. OF ECON. & MANAGEMENT SCIENCE 633 (1974).

[36] Our estimates also indicate that the import quota had a statistically significant positive impact on reserves.

[37] *Cost-Effectiveness, supra* note 35; Cox & Wright, *The Economics of the Oil Industry's Tax Burden*, in TAXATION WITH REPRESENTATION, THE PETROLEUM INDUSTRY'S TAX BURDEN 5 (1973).

1970's and 1980's from what it was in earlier decades. If that is the case, estimates of price and other elasticities based on aggregated data from past periods may not be good estimates of the actual elasticities which firms in the aggregate will exhibit in the future.

Under the policies of state market-demand prorationing and the oil import quota, the decade and a half prior to 1973 was characterized by remarkable price stability in the domestic petroleum industry, especially the crude oil segment of it. In such an environment, there was little uncertainty about prospective future petroleum prices, and econometric estimates based on data from that period should reflect stable expectations about prices. In marked contrast to the period 1959-1972 is the present environment, which is characterized by considerable uncertainty about future petroleum prices. The primary sources of the uncertainty are the possible instability of the cartel that is currently setting world crude oil prices, and the inherently political nature of U.S. price controls and import policy regarding petroleum. Adaptation by producers to the present uncertainty about prices could cause current price-elasticities to differ significantly from those of the past, estimated with data drawn from periods with relatively stable price expectations.

Finally, the normally hazardous procedure of extrapolating empirical results ahead in time has been rendered impracticable by the very large increases since 1973 in crude oil prices. As a result of those increases, current oil prices are far outside the range of values which prevailed during the period from which the findings were obtained.

The import of the above three factors is that, while certain qualitative statements are supported by the empirical results for earlier periods, it would be misleading to attempt to determine quantitative magnitudes for the effects of the partial repeal of percentage depletion by TRA on the basis of those earlier results. Therefore, the following remarks are restricted to the probable *qualitative* effects of TRA.

It is convenient to begin with the policy environment which will come into effect once the crude oil price controls have been phased out (as envisioned under the Energy Policy and Conservation Act); it is also assumed that natural gas has been deregulated and there are no restrictions on oil imports. Given the market prices of oil and gas, TRA will reduce the after-tax marginal revenue of all domestic petroleum output except that which qualifies for the natural gas exemption and (until 1980, when the percentage depletion rate begins to fall) for the independents' exemption.[38] The switch from percentage to cost depletion will provide some offset, especially on new wells, whose cost-depletable bases will not have been reduced by past per-

[38] The argument is the reverse of that in *supra* note 32. In 1980, when the crude-oil price controls are scheduled to expire, the maximum "depletable quantity" under the independents' exemption will have reached its floor of 1,000 bpd; thereafter, the permissible percentage depletion rate will decline towards its floor of 15 percent.

centage depletion deductions. If past experience is any guide, however, cost depletion will be less profitable, after tax, than percentage depletion would have been, even on new wells.[39] Hence TRA should cause declines in both oil and gas output and investment in proved petroleum reserves, compared to the situation without it. It is worth repeating that finding this probable qualitative effect of TRA on domestic petroleum output and reserves does not answer the question of whether TRA—or percentage depletion under the previous tax provisions—represents optimal public policy.

In the same policy environment of no price controls or import restrictions, the partial repeal of percentage depletion will have no effect on crude-oil or refined-product prices, even though, as indicated above, domestic oil output would decline. This result would occur because the United States is a price-taker in the world crude oil market, now dominated by the cartel of the major exporting countries. With no price controls or import restrictions, the price of domestic oil output will be determined by the delivered price of imported crude oil, so long as the United States is a net importer of oil. Thus domestic crude oil producers will not be able, by raising prices, to shift forward to consumers the increased tax payments due to the partial repeal of percentage depletion. If natural gas prices are deregulated, however, gas producers could shift part of the increased taxes forward through higher prices.[40]

The current policy environment consists of price controls and allocations of both oil and natural gas, with uncertainty about when or whether the government regulations will end. The uncertainty may lead producers to speculate about the end of the controls by curtailing current output and investment in anticipation of higher prices and greater freedom to maneuver in future periods. Holding constant any speculative response to the uncertainty about market price, the partial repeal of percentage depletion by TRA will further reduce output and investment, compared to the situation without TRA.[41] The reason for this reduction is the same as that operating in the eventual future policy environment of no controls or regulation: given the market price of oil or gas, the percentage depletion provisions in TRA would

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[39] *Cf.* note 32 *supra.*

[40] The reasoning is as follows. The demand for natural gas, which is a substitute for crude oil will not be affected by TRA in this policy environment, since crude oil prices will not change. As argued above, however, less gas will be supplied at any market price with TRA than without it. This will cause the (deregulated) price of gas to rise; the increase will be some fraction of the increase in supply-price caused by TRA, depending on the relative price-elasticities of demand and supply. The switch to cost depletion will partially, but not completely, offset the supply shift and hence the price increase. This argument assumes that the United States is not a price-taker in the market for imported natural gas.

[41] Because 6 mcf of gas are worth substantially less at present regulated prices than is a barrel of crude oil, the 6 mcf: 1 barrel conversion factor in TRA will cause producers to maximize the crude oil component in their "depletable quantities." This will tend to aggravate the shortage of natural gas at FPC-regulated prices.

reduce the after-tax marginal revenue received by producers, with only a partial offset from the use of cost depletion. Unlike the case of no price controls, however, the partial repeal of percentage depletion by TRA will increase the prices of refined oil products. In addition, it may raise natural gas prices in the intrastate market (which is outside the jurisdiction of the FPC). Each case will be examined in turn.

Under the existing programs of oil price controls and crude-oil "entitlements," the reduction in domestic crude oil production induced by TRA will cause increases in both the marginal and the average costs of crude oil to refiners. The higher average cost of crude oil will in turn lead the FEA to raise the maximum permissible controlled prices of refined products. To explain these assertions, the interaction of the price controls and entitlements must be examined.

The crude oil price controls effect an income transfer from crude oil producers to refiners and consumers of refined oil products. The amount of the transfer equals the quantity of price-controlled production times the difference between the uncontrolled (free-market) price and controlled price. The FEA's entitlements program distributes the transfer among refiners, and a portion of it is passed through to consumers in the form of lower retail prices of refined products. An individual refiner's share of the income transfer is calculated as the ratio of his own crude-oil throughput ("crude run to stills") to the total throughput of domestic U.S. refineries. Any individual refiner can increase his share of the available entitlements by expanding his throughput of crude oil. He will, of course, have to pay the free-market price for the additional oil; however, the effective marginal cost of an extra barrel of crude oil to the refiner is *less* than the free-market price because of the entitlements program.[42] Specifically, that marginal cost is the uncontrolled (free-market) price *less* the value of the extra share of the income transfer the refiner receives through the entitlements program by expanding his crude oil throughput.[43]

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[42] We are indebted to David Mead of the FEA for first pointing this out to us. If the entitlements program did not exist, the marginal cost of crude oil to a refiner would be the uncontrolled or free-market price. In that case, any reduction in output of price-controlled oil because of TRA would affect the average cost but not the marginal cost of crude oil to refiners.

[43] To see this, define the following terms: p_m is the unregulated market price of crude oil; p_c is the controlled price of crude oil; X is the total production of price-controlled oil; q_j is the quantity of crude oil throughput by the j^{th} refinery; Q is the quantity of crude oil throughput by all refineries. Then the total cost (TC_j), average cost (AC_j), and marginal cost (MC_j) of crude oil to the j^{th} refinery are as follows:

$TC_j = p_m q_j - [(p_m - p_c)X][q_j/Q]$;

$AC_j = p_m - [(p_m - p_c)X][1/Q]$;

$MC_j = p_m - [(p_m - p_c)X][d(q_j/Q)/dq_j]$.

So long as $p_c < p_m$, then $MC_j < p_m$. (Note that both marginal and average crude oil costs are increasing functions of the controlled price, p_c. Thus one implication of the above discussion of entitlements is that, contrary to statements by some economists, crude oil price deregulation will raise refined product prices. This is the issue analyzed by Mead, *supra* note 42.)

As suggested earlier, the partial repeal of percentage depletion by TRA should cause the production of price-controlled domestic crude oil to decrease. Any reduction in price-controlled production will reduce the size of the income transfer received by refiners through the entitlements program and hence increase both their marginal and average costs of crude oil.[44] Under the price-control provisions of the Energy Policy and Conservation Act,[45] the increased average costs of crude oil to refiners will lead the FEA to raise the maximum permissible controlled prices of refined products. The combination of higher marginal and average costs of crude oil to refiners and higher ceiling prices on refined products means that TRA will cause an increase in the price of every refined product for which the United States is not a price-taker in the import market. This conclusion holds, no matter what market structure one assumes prevails in the domestic U.S. oil industry.

The effects of the partial repeal of percentage depletion by TRA on natural gas prices under the present policies are more straightforward than those for crude oil and refined products. TRA will have no direct effect on the price of interstate gas, which is regulated by the FPC; holding the regulated price constant, reductions in natural gas committed to the interstate market will exacerbate the existing shortage there. TRA should, however, raise prices in intrastate gas markets, where prices are subject to market forces. This is because the reduction of depletion benefits will cause investment in new gas reserves for that market to fall; and with time, the lower investment would result in lower production than if TRA had not been passed.

The petroleum market effects of the partial repeal of percentage depletion analyzed above will tend to reduce the direct revenue effects discussed in section I.B. This is because the output and price adaptations to TRA will necessarily reduce the *taxable* income of crude petroleum producers.[46] Hence, to the extent those producers respond to TRA as has been suggested, the *net* revenue effects of Title V of the bill will be smaller than the direct revenue effects. The amount of the difference between direct and net revenue effects cannot, unfortunately, be ascertained with any degree of precision.

A final point to be noted here concerns the impact of TRA, through its effects on petroleum prices (or, in the interstate gas market, excess demand), on market variables in the coal industry. Since refined oil products and natural gas are substitutes for coal, increases in their prices (or in excess demands for them) will cause the demand for coal to increase: more coal will be demanded at every price. Given the domestic supply of coal—TRA did not alter percentage depletion

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[44] In terms of the equations in note 43 *supra*, both Ac_j and MC_j are decreasing in X, the total production of price-controlled oil.

[45] Pub. L. No. 94-163 (Dec. 22, 1976).

[46] The market adjustments to TRA will reduce taxable income so long as marginal returns in oil and gas production are positive.

deductions (at 10 percent) for coal producers[47]—an increase in demand will raise the price of coal; the higher price in turn will create an incentive for greater coal production and investment. Under the existing price-control policies in petroleum markets, then, the higher prices of refined products and intrastate gas, and the larger excess demand for interstate gas, induced by TRA, will raise coal price, output and investment. When and if the price controls are removed, TRA will have no differential impact on coal through refined-product prices, which will not be affected; the higher prices of natural gas, however, will cause higher coal prices, hence also output and investment, than if TRA had not been passed.

2. Effects on Energy Independence

Ever since the Arab embargo of 1973-1974, independence in oil and other forms of energy has been a central focus of public policy discussions. At first, the Nixon administration adopted complete self-sufficiency (*i.e.*, zero imports) by 1980 as its goal for energy independence.[48] Currently, the Ford administration's goal is to reduce oil imports below 5 million bpd (1.825 billion barrels a year) by 1985.[49] Certain policies have focused specifically on increasing energy independence—for example, the creation of a "strategic reserve" of crude oil and refined products, as insurance against the disruptions of another embargo.[50] However, policies which focus on other issues, such as the taxation of petroleum income, may also have effects on independence.[51] This subsection will assess the impact of the partial repeal of percentage depletion by TRA on national independence in energy.

In essence, to be more "independent" in oil (or any other good that is imported) is to be less vulnerable to a sudden disruption of import supplies. To economists, vulnerability is best measured in terms of the costs which a cut-off of imports would impose on households, firms, and government agencies, including the military; the less vulnerable a country is with respect to energy imports, the lower the costs to that country of an embargo like the one on oil. To determine

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[47] *See* INT. REV. CODE OF 1954, § 613.

[48] M.I.T. ENERGY LABORATORY POLICY STUDY GROUP, ENERGY SELF-SUFFICIENCY: AN ECONOMIC EVALUATION 1 (1974).

[49] N.Y. Times, Feb. 11, 1976, at 61, col. 6.

[50] Title I, Part B, of the Energy Policy and Conservation Act, Pub. L. No. 94-163 (Dec. 22, 1975) provides for the strategic reserve of oil.

[51] The objective of energy independence, in an earlier guise referred to as "national security," frequently figured in the political debate over the special tax provisions for petroleum which TRA eventually altered. Petroleum lobby groups and other industry representatives often asserted that any reduction in percentage depletion benefits would "weaken" the domestic U.S. petroleum industry and thereby cause a deterioration in "national security" or energy independence. *See, e.g.*, JOINT COMMITTEE ON THE ECONOMIC REPORT, FEDERAL TAX POLICY FOR GROWTH AND STABILITY, 84th Cong., 1st Sess. 419-93 (1955); AMERICAN PETROLEUM INSTITUTE, PETROLEUM TAXATION AND ENERGY INDEPENDENCE (1974).

the economically optimal degree of independence, of course, the costs of securing the means of protecting against a sudden disruption must be set against the expected costs of the disruption itself. Measured as above, vulnerability in oil can be reduced by holding domestic excess capacity in reserve, so that it is available to replace oil imports if they are cut off on short notice. Vulnerability can also be reduced by increasing the degree of self-sufficiency—that is, by cutting oil imports and raising domestic production.[52]

The impact of TRA on energy independence depends on its effects on the quantities of crude oil and refined product imports and on domestic production of crude oil, natural gas, and coal.[53] As demonstrated above, the partial repeal of percentage depletion by TRA creates incentives to reduce domestic production and investment in petroleum, and to increase them in coal, whether or not there are petroleum price controls. The effects of TRA on petroleum prices (or excess demands) and on imports, however, differ between the present price-controlled policy environment and the prospective future free-market environment. Each case is discussed in turn.

Under existing policies, any reduction in price-controlled domestic crude oil production induced by TRA will lead to an increase in refined-product prices, because of the way the entitlements program works. TRA will not directly affect interstate natural gas prices—which are controlled by the FPC—but if it reduces output for that market, it will widen the existing shortage at the regulated price. In intrastate gas markets, any output reductions caused by TRA will raise prices. The higher prices of refined oil products will increase the demands for natural gas and coal; the combination of the worsened shortage in the interstate gas market and the higher intrastate gas prices will shift demand to coal and refined products.

The foregoing effects of TRA in the current policy environment imply that the bill will have a qualitatively indeterminate impact on energy independence. To the extent producers respond to the incentive in TRA to reduce domestic crude oil production, oil imports will increase—in absolute amount and in proportion to total quantity demanded—to replace the domestic production. The increase in demand for refined oil products originating in the interstate and intrastate gas markets will also work to increase oil imports. The increase

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[52] For a detailed discussion of the concept of energy independence, see Cox and Wright, *A Tariff Policy for Independence from Oil Embargoes*, 28 NATL TAX J. 29 (1975). Note that for a depletable natural resource like petroleum, reducing *current* vulnerability by increasing domestic production will make it more expensive to reduce *future* vulnerability. This is because the increase in current production accelerates the rate of resource depletion, thereby raising the cost of developing domestic petroleum resources in future periods. In the subsequent discussion, we shall ignore the complications introduced by this trade-off between present and future energy independence.

[53] In the present discussion it is assumed that the United States will not be a price-taker in import markets for natural gas, liquefied natural gas, or coal.

in the prices of refined products, however, will reduce the quantities of both products and crude oil demanded, hence also the volume of oil imports. Coal output and investment will expand in response to the increased demand for coal coming from both the oil and the gas markets. Overall, then, under the present policies of price controls and free foreign trade in oil, the effect of TRA on energy independence is ambiguous, since it consists of reductions in domestic oil and gas production, an increase in coal production, and an indeterminate effect on oil imports.

In the prospective future policy environment, TRA will have an unambiguously adverse impact on energy independence. With no price controls or import restrictions, the existence of TRA will not cause any differential in refined oil product prices: the cost of domestic crude oil to refiners—determined by the delivered price of imported oil—will not be affected by TRA, even though domestic crude oil production will be smaller with the bill than without it. With natural gas prices no longer regulated, TRA will be responsible for higher natural gas prices than would prevail without it; the higher gas prices will in turn raise the demands for both refined products and coal. The overall effects of smaller domestic oil and gas production and a higher gas price will be the substitution of imported oil and domestic coal for domestic oil and gas. As a result, oil imports will increase both absolutely and as a proportion of total U.S. energy consumption.

3. Effects on Industry Market Structure

The degree of monopoly power in the petroleum industry is a public policy issue with roots going back to the 19th century. The "energy crisis" has rekindled interest in this issue: critics of the industry heatedly accuse it of monopolistic practices, and the industry just as heatedly denies the charges. Presidential candidates and other politicians have offered a variety of proposals to reduce the alleged monopoly power of the largest oil and gas companies, and a bill has been introduced in the Senate which would break up those firms.

It is beyond the scope of this article to attempt to evaluate the recent allegations of monopolistic practices by the petroleum industry.[54] However, it is possible to point out the effects which the partial repeal of percentage depletion by TRA is likely to have on two magnitudes which frequently figure in the policy dispute over monopoly power in petroleum. Those magnitudes are the degree of "concentration" in markets for crude oil and natural gas, and the de-

[54] The interested reader may consult the following: Davidson, Falk and Lee, *Oil: Its Time Allocation and Project Independence*, 2 BROOKINGS PAPERS ON ECON. ACTIVITY 411 (1974); *Oil Supply, supra* note 20; Mulholland and Webbink, *Concentration Levels and Trends in the Energy Sector of the U.S. Economy*, FEDERAL TRADE COMMISSION ECONOMIC REPORT (March 1974).

gree of "vertical integration" in the oil industry.[55] Market concentration has to do with the proportion of total industry sales—or assets, employment, value-added, and so on—accounted for by different numbers of firms in the industry, ranked according to size. The more firms included, in a given percentage of total sales, the less concentrated is the industry and therefore, in the conventional view, the smaller the possibility of monopoly power. Vertical integration refers to the number of stages of the production process, from natural resources to finished consumer goods, encompassed within an individual company; integrated firms are sometimes said to gain monopoly power in one stage of production because of their control over other stages of production.

As demonstrated above, TRA contains an incentive to organize new extraction facilities for crude oil and natural gas in units small enough to qualify for the independents' exemption. In addition, the exclusion of petroleum retailers from that exemption gives an incentive to have non-integrated rather than integrated companies "prove up" new reserves. To the extent decision makers in the petroleum industry find it profitable (after tax) to respond to those incentives, TRA will reduce both market concentration—the share of large producers—in crude oil and natural gas production and the degree of integration by oil refiners "backwards" into crude oil production. The exact extent of the reductions in concentration and vertical integration cannot, of course, be determined without a detailed study of the existing market structures in the industry and of the effects of other policies than TRA. Such a study would be outside the scope of this article. The same reason precludes judgment of whether TRA represents the most effective public policy in terms of its effects on market structure.

II. CHANGES IN THE TAXATION OF FOREIGN PETROLEUM INCOME

Subsection II.A. will summarize the changes introduced by TRA in the taxation of U.S. corporations' foreign petroleum income. The remainder of the section will discuss how effectively TRA deals with three current issues of foreign tax policy. Estimates of the revenue and other economic effects of the foreign tax changes in TRA are covered in the discussion of the three policy issues.

A. *Specific Provisions of TRA*

As indicated above in subsection I.A., Title V of TRA repeals the percentage depletion allowance on all foreign oil and gas production. Title VI of the bill introduces special rules governing the taxa-

[55] The issue of possible monopoly power in energy markets generally, due to diversification by oil companies into coal and other fuel industries, is not dealt with here.

tion of foreign income from oil and gas operations.[56] These rules impose new limits on the amounts of foreign tax credits petroleum companies may claim;[57] deny the companies the use of the per-country method of calculating foreign tax credits;[58] and provide for revenue recapture of deductions for losses on petroleum activities abroad.[59] In addition, Title VI restricts the scope of payments to foreign governments which will be considered income taxes for purposes of determining allowable foreign tax credits.[60]

The basic feature of the special rules is that, for tax years ending after December 31, 1974, so-called "foreign oil related income" will be treated separately from other taxable foreign income in applying the section 904 limitations on foreign tax credits. Foreign oil related income includes taxable income from the foreign extraction, processing, and distribution of oil and gas; from the sale or exchange of assets used in any of those activities; and from dividends, interest, and partnership shares on foreign petroleum operations.[61] The separation of oil related income from other foreign income with reference to the section 904 limitations means that excess foreign tax credits from petroleum operations may only be used to offset U.S. tax liabilities on foreign oil related income.

Related to the concept of foreign oil related income is the "foreign oil related loss." This loss occurs if the sum of the taxpayer's normal foreign deductions[62] is greater than his foreign oil related income.[63] For tax years ending after December 31, 1975, any reduction in U.S. tax liability caused by using a foreign oil related loss to offset domestic income will be recaptured in subsequent years in which the taxpayer has foreign oil related income. The recapture is to be accomplished by treating as income from domestic sources 50 percent of each subsequent year's foreign oil related income until the revenue loss is fully made good. In addition, total creditable foreign taxes are to be reduced by that proportion of total foreign oil related income which is treated as domestic U.S. income for purposes of the loss recapture.[64]

On income from foreign oil and gas extraction, Title VI of TRA limits the foreign taxes which qualify for the credit to specified percentages of U.S.-taxable income from such extraction. At the existing

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[56] INT. REV. CODE OF 1954, § 907, *added by* Pub. L. No. 94-12, § 691 (March 29, 1975).

[57] INT. REV. CODE OF 1954, § 907(a).

[58] *Id.* § 907(b).

[59] *Id.* § 907(f).

[60] *Id.* § 901(f). (Note: this subsection replaces the previous subsection (f), which becomes subsection (g).)

[61] *Id.* § 907(c).

[62] Certain special deductions may not be used in computing this loss. For a concise listing of them, see 6 CCH 1976 STAND. FED. TAX REP. ¶ 4332f.10 at 50,162.

[63] INT. REV. CODE OF 1954, § 907(f)(6).

[64] *Id.* § 907(f).

corporation income tax rate of 48 percent, the specified percentages are 52.8 for 1975, 50.4 for 1976, and 50 thereafter.[65] Taxes paid in excess of those percentages may not be used, even as deductions, to reduce U.S. income tax liability. Two additional provisions of TRA restrict the prices which may be used and the definition of eligible taxes paid in computing foreign tax credits. One subsection prohibits the use of "posted" or other fictitious prices to determine taxable income from extraction if oil or gas is sold, or if it is purchased from anybody but a foreign government.[66] Another subsection provides that payments to foreign governments in transactions for oil and gas will not be regarded as taxes if the taxpayer has no "economic interest" in the petroleum in question, and if the price used in the transaction is not the "fair market value."[67]

B. *The Foreign Tax Policy Effectiveness of TRA*

The implications of the changes introduced by TRA in the taxation of foreign petroleum income can usefully be discussed in the context of three controversial policy issues.[68] First, are American oil companies given a tax incentive to invest in foreign oil development at a time when domestic development is supposedly an objective of public policy? Second, are the "income taxes" paid to producer country governments by the oil companies in reality excise taxes assessed in lieu of higher royalties? Third, do the vertically integrated international oil companies use fictitious internal pricing to transfer profits from countries with high marginal (U.S. plus foreign) tax rates to countries with low marginal rates? This subsection will examine each of these issues, and will discuss how effectively TRA deals with them.

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[65] *Id.* § 907(a). The stated rationale for the "leeway" of several percentage points above the U.S. statutory corporation income tax rate was that, with it, "oil companies generally would not be treated less favorably than other American companies operating abroad" H.R. REP. NO. 93-1028, 93rd Cong., 2d Sess. 9 (1974) [hereinafter cited as HOUSE REPORT]. This source was the Ways and Means Committee report to the full house on H.R. 14462, The Oil and Gas Energy Revenue Act of 1974, which contained the original versions of the petroleum provisions in TRA.

Particular provisions covering the "Western Hemisphere Trade Corporation [which] is a member of an affiliated group" are given in INT. REV. CODE OF 1954, § 907(g).

[66] INT. REV. CODE OF 1954, § 907(d).

[67] *Id.* § 901(f).

[68] In writing this subsection, the authors have benefitted from the following: M. ADELMAN, THE WORLD PETROLEUM MARKET (1972) [hereinafter cited as WORLD PETROLEUM MARKET]; Jenkins & B. Wright, *Taxation of Income of Miltinational Corporations: The Case of the U.S. Petroleum Industry*, 57 REV. OF ECON. & STATISTICS 1 (1975) [hereinafter cited as *Taxation of Income*]; and B. Wright, Taxation of the Overseas Operations of the U.S. Petroleum Industry, in The Taxation of Petroleum Production, 1976 (unpublished PhD. dissertation, Dep't of Econ., Harvard Univ.) [hereinafter cited as Overseas Operations].

1. Tax Incentive for Foreign Oil Development

The time stream of income from a new petroleum province is typically negative for the first few years, when exploration costs are incurred but there is little or no extraction. As extraction increases, the income stream becomes positive. The time pattern of initial losses and later positive income is exaggerated in terms of *after-tax* income by federal tax provisions that permit so-called "intangible" drilling costs and "dry-hole" costs to be expensed as incurred, rather than capitalized and depreciated over several years, as uniform tax treatment would require. Before TRA was passed, an international oil company could deduct the foreign drilling costs (as losses) from its domestic U.S. income if it used the per-country limitation, or if it used the overall limitation but did not have much foreign income from other sources. When the new petroleum province later produced income, the company could typically shield that income completely from U.S. tax with foreign tax credits. Thus, the U.S. Treasury bore part of the costs of foreign oil development but did not share in the income from it. In effect, the United States provided a tax incentive for the development of foreign oil fields.

The denial of the per-country limitation to oil companies and the provision for the recapture of foreign oil related losses in TRA will remove a large share of the subsidies just described and hence reduce the tax incentive to develop foreign oil resources. Restricted to the overall limitation, established oil companies with large amounts of foreign production will be prevented from deducting drilling costs in new foreign petroleum provinces from their U.S. domestic income. New American entrants into foreign oil development will still be able to deduct those costs from domestic U.S. income under the overall limitation. Under the loss recapture provision, however, a company that reduces its tax payment in one year by deducting foreign oil related losses from domestic income will only defer the tax until later years if it eventually earns sufficient foreign income. Thus, TRA continues the tax incentive to foreign oil investment only to the extent that the present discounted value of deferred tax payments is less than the present value of current tax payments, and in the event that an international oil company has no foreign oil related income in subsequent years.

2. Income Taxes or Royalties?

Many foreign governments collect relatively small "royalty" payments from oil companies extracting oil in their countries; however, they impose heavy "income taxes" on the companies. In virtually all cases, the governments of the foreign oil producing countries own the mineral rights to the oil in addition to being the taxing authority. Thus, for purposes of collecting the economic rents on their lower-cost oil resources, it makes no difference to the governments whether

the payments they receive are labelled royalties, excise taxes, or income taxes. From the standpoint of the U.S. international oil companies, however, the label assigned to the payments is very important. Any payment which is called a royalty or an excise tax can be deducted from gross income in calculating U.S. corporation income tax liability on foreign source income. In contrast, any payment which is labelled an income tax can be credited against the tax liability itself. Therefore any income tax payments to foreign governments up to the amount of tax they would owe the U.S. Treasury on their foreign-source incomes does not cost the oil companies anything.

The "income tax" payments collected by the governments of the major oil exporting countries are calculated as a percentage rate times a "net income" figure, determined as the quantity of production times the difference between a non-market, negotiated "posted price" and a unit cost of production. It has been alleged that these payments are not in fact income taxes; this is because the "net income" base on which the tax is assessed is not the actual net income from oil production, since "posted prices" do not represent the market value of crude oil.[69] The oil companies' payments to the producer country governments more nearly represent excise taxes or royalties, because the amount of the payments depends on the quantity of production but not on the market price.

There is widespread agreement among economists and other tax professionals that the above allegation is correct.[70] Nevertheless, the larger part of the tax payments made to the producer-country governments by the oil companies have been accepted by the U.S. Treasury as income tax payments, and have therefore been credited against the companies' U.S. corporation income tax liabilities on foreign-source income. This arrangement for paying royalties to the producer countries began in 1950, in response to Saudi Arabian demands for a larger share of oil revenues. The State Department and the National Security Council prevailed on the U.S. Treasury to accept increased payments by the oil companies as creditable income taxes, thus transferring tax revenues from the U.S. government to the Saudi government without (at that time) increasing the costs of the companies.[71] Since the early 1950's, the arrangement has meant that the oil companies have amassed large amounts of excess foreign tax credits — creditable "income taxes" in excess of the putative U.S. tax liabilities on their foreign source incomes. With the sharp increases in

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[69] This point is developed more fully in WORLD PETROLEUM MARKET, *supra* note 68, at 207-10.

[70] *Id.*; *Taxation of Income*, *supra* note 68, at 10; Overseas Operations, *supra* note 68; *TAIA Calls for Revocations of Oil Credit Rulings*, 3 TAX NOTES, NO. 2, at 4 (1975).

[71] Overseas Operations, *supra* note 68, at 9 n.15, *citing* 1974 testimony by Ambassador George McGee before the Senate Subcommittee on Multinational Corporations. *See also* G. BRANNON, ENERGY TAXES AND SUBSIDIES: A REPORT TO THE ENERGY POLICY PROJECT OF THE FORD FOUNDATION 104 n.8 (1974).

"posted prices" since 1972, those excess credits have risen astronomically.

The report of the Committee on Ways and Means to the full House on H.R. 14462, the 1974 bill which prefigured TRA, contained the following statement: "The committee concluded that this advantage of, in effect, converting royalty payments into taxes creditable against U.S. taxes should be stopped.[72] Thus one of the two major tax-writing committees in the Congress explicitly recognized the validity of the allegation that the oil companies' "income tax" payments to the oil-exporting countries are really royalties for extraction rights. In spite of the recognition that the advantage *should* be stopped, however, the foreign tax provisions carried over from H.R. 14462 into TRA do not in fact stop the conversion of extraction royalties into creditable income taxes. Instead, they merely limit that conversion and reduce the scope for using excess tax credits from extraction to offset liabilities in other lines of economic activity, both oil related and non-oil.

The percentage limitations in TRA on creditable foreign taxes on extraction income will obviously not impose any U.S. taxes on that income, because the percentage limits—52.8 in 1975, 50.4 in 1976, and 50 thereafter[73]—all exceed the U.S. statutory corporation income tax rate of 48 percent. In addition, the repeal of percentage depletion on foreign wells will not by itself impose any taxes on foreign extraction income, because the oil companies will still have two percentage points of excess foreign tax credits even under the 50 percent limitation. That limitation could impose U.S. taxes on foreign oil related income from non-extraction activities, if a company's excess tax credits on extraction income were not sufficient to shield from U.S. tax their other oil related income in countries whose income tax rates are below the U.S. rate. The provision in TRA which separates oil from non-oil related foreign income in determining and applying foreign tax credits will increase the U.S. tax liabilities of those oil companies which have diversified into unrelated foreign industries and have previously used excess credits from oil operations to offset non-oil tax liabilities. The proportion of oil company foreign-source income which comes from non-oil related sources is, however, quite small; therefore the revenue impact of this provision should be relatively minor.

The only sizeable impact of the percentage income limitations on foreign tax credits from extraction will be on the amount of *excess* credits themselves. Using U. S. Treasury data, it is possible to estimate the amount of the petroleum industry's actual 1974 excess foreign tax credits which would have been disallowed if the rules introduced by TRA for each of 1975, 1976, and 1977 *et seq.* had been in force dur-

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[72] HOUSE REPORT, *supra* note 65, at 9.

[73] INT. REV. CODE OF 1954, § 907(a).

ing 1974.[74] "Foreign source income taxable under U.S. law" in 1974 was $27,400 million; the "tentative U.S. tax" was therefore $13,152 million. Calculating the various maximum foreign tax credits allowed with and without the TRA changes, and then subtracting the tentative U.S. tax from those credits, gives estimates of the excess foreign tax credits under the particular rules in question. The resulting figures may be summarized as follows:

Table 3. *Effects of Applying TRA Rules to 1974 Oil Industry Foreign Tax Credits*

($ million)

	Maximum Foreign Tax Credits Allowed	Estimated Excess Foreign Tax Credits[c]
1974 actual[a]	23,500.0	10,348.0
1975 TRA rules[b]	14,467.2	1,315.2
1976 TRA rules[b]	13,809.6	657.6
1977 TRA rules[b]	13,700.0	548.0

[a] Foreign taxes paid.

[b] U.S.-taxable income times the limiting percentage in TRA ($27,400 times .528, .504, and .50 respectively).

[c] Maximum credits allowed minus tentative U.S. tax of $13,152 million.

It should be stressed that the putative figures in Table 3 for 1974 excess foreign tax credits according to the TRA rules are only rough estimates. In particular, the percentage limits on creditable foreign taxes paid on *extraction* income are applied to *all* foreign-source oil income; the proportions of extraction and non-extraction income and the effective tax rates on each are not known. These estimates could, however, have a large percentage bias and the conclusion would still be the same. The TRA percentage income limitations will have a very large impact on the *excess* foreign tax credits of the oil industry. The percentage income limits will therefore remove most of the large overhang of excess foreign tax credits which has built up in recent years with the sharp increases in oil prices and exporting-country taxes. Given the five-year carry-forward provisions which apply to excess credits, removing the overhang can be viewed as a

[74] HOUSE COMM. ON WAYS AND MEANS, TAXATION OF FOREIGN SOURCE INCOME: STATISTICAL DATA, 94th Cong., 1st Sess. 13, 20 (1975).

necessary first step towards any future significant U.S. taxation of the foreign source income of oil corporations.

3. Tax Avoidance Through Profit Transfers

In the international oil industry, many transactions take place between related affiliates of vertically integrated companies. The companies, therefore, have an opportunity to manipulate internal transaction prices and thus shift profits between countries in order to minimize their total tax liabilities. As noted above, the "income taxes" levied by the producing countries are based on the difference between a fictitious gross revenue figure and production costs, where the revenue figure equals the "posted price" times the quantity of petroleum extracted. That method of taxation implies, however, that the "income tax" collected by a producer country government will not vary with changes in a company's recorded book revenue from extraction. Thus the effective *marginal* income tax rate in the producing countries is zero. If the companies also have excess foreign tax credits in calculating their U.S. tax liabilities on foreign-source income, the total (U.S.-plus-foreign) marginal income tax rate is also zero. In this situation, if a company can use fictitious internal transfer pricing to shift any of its recorded profits from a country with a positive marginal income tax rate to one of the producing countries, it can avoid paying taxes on those profits.

In principle, section 482 of the Internal Revenue Code forbids profit transfers from the United States to foreign producing countries by using internal prices which do not equal the market value of the products transferred.[75] In practice, the implementation of section 482 is another matter, especially against the background of the longstanding acceptance as "income taxes" of taxes based on fictitious net income figures. Statistical support has been provided for the existence of profit transfers of the kind described here, from the major West European consuming countries and Japan to the oil exporting countries.[76] The opportunity for similar profit transfers from the United States, with accompanying revenue losses to the U.S. Treasury, has grown in the 1970's, with the increase in American oil imports.

The restrictions in TRA on the use of "posted prices" do not apply to intra-company transfers of crude oil. Therefore TRA will not effectively limit the practice of fictitious transfers of profits to avoid taxes. What is perhaps worse, TRA actually contains an incentive for firms to attempt such transfers. Under the percentage limitation on foreign tax credits, each dollar of profit transferred from a consum-

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[75] The United States Treasury has cited section 482 as the reason the provisions in TRA prohibiting the use of "posted prices" in certain transactions (see subsection III.A. above) are not expected to raise any U.S. tax revenue (Treasury submission to the Office of Management and the Budget for the Fall Budget Review, 1975).

[76] *Taxation of Income, supra* note 68.

ing country to a producing country will increase a company's allowable tax credits by more than it will increase its U.S. income tax liability on the transferred profits. Here is a graphic illustration of the desirability of confronting the income tax-royalty issue directly rather than obliquely with a percentage limitation on foreign tax credits such as is contained in TRA.

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