



Spring 1981

The Incidence and Effects of the Crude Oil Windfall Profit Tax

Stephen L. McDonald

Recommended Citation

Stephen L. McDonald, *The Incidence and Effects of the Crude Oil Windfall Profit Tax*, 21 Nat. Resources J. 331 (1981).

Available at: <https://digitalrepository.unm.edu/nrj/vol21/iss2/7>

This Article is brought to you for free and open access by the Law Journals at UNM Digital Repository. It has been accepted for inclusion in Natural Resources Journal by an authorized editor of UNM Digital Repository. For more information, please contact amywinter@unm.edu, lsloane@salud.unm.edu, sahrk@unm.edu.

THE INCIDENCE AND EFFECTS OF THE CRUDE OIL WINDFALL PROFIT TAX

STEPHEN L. MCDONALD*

The crude oil windfall profit tax,¹ effective February 29, 1980, is officially described as "a temporary excise, or severance, tax applying to taxable crude oil produced in the United States. . . ."² From this description some may infer that the burden of the tax will be borne by domestic consumers of oil in the form of higher prices, with the usual effect—small in this instance, due to an inelastic demand—of reduced domestic production. It is the purpose of this article to show that such an inference is unjustified. In fact, the domestic demand for domestically produced oil is perfectly elastic at the world price determined by OPEC, a price which, in our judgment, is unlikely to be significantly affected by the tax. If this judgment is correct, the burden of the tax will be borne entirely by oil operators and landowners, with the landowners' share increasing as time passes. Furthermore, the effect on domestic output will be substantial, due to the perfectly elastic effective demand. Domestic oil price deregulation, which is supposed to be completed by October 1, 1981, is resulting in a sudden and large rise in price to the world level. It should be remembered in what follows that this increase was the occasion for the windfall profits tax.

THE NATURE OF THE TAX

For purposes of the tax, oil production in the United States is classified into three "tiers."³ For oil in tier one, the tax is 70 percent of the windfall profit.⁴ The windfall profit is the difference between the actual selling price of the oil and its May 1979 regulated price (\$13.02 per barrel) less \$0.21, adjusted for inflation.⁵ Generally, tier one oil is oil discovered prior to 1979, including that produced from the Sadlerochit reservoir on the Alaskan North Slope. However, excluded from tier one is (1) oil from stripper well properties,⁶ (2) oil

*Professor of Economics, University of Texas, Austin.

1. Pub. L. No. 96-223, 94 Stat. 229 (1980) (to be codified at 26 U.S.C. §§ 4986-4998).

2. JOINT COMMITTEE ON TAXATION, SUMMARY OF H.R. 3919, 96th Cong., 2nd Sess. 6 (1980).

3. 26 U.S.C.A. § 4987(b) (1980).

4. *Id.*

5. *Id.* § 4989(c).

6. A stripper well is a well incapable of producing more than ten barrels of oil per day.

in which the United States has an economic interest and which is produced from a National Petroleum Reserve,⁷ (3) most oil deregulated as front-end financing for tertiary recovery projects, (4) newly discovered oil, (5) certain heavy oil, and (6) incremental tertiary oil. These categories are taxed as tier two or tier three oil.⁸

The tier two tax is 60 percent of the windfall profit, the latter being the difference between the actual selling price of the oil and \$15.20, adjusted for inflation and for differences in quality and location.⁹ Oil in tier two includes production from stripper well properties and oil produced from a National Petroleum Reserve in which the United States has an economic interest.¹⁰ Oil produced north of the Arctic Circle, other than that from the Sadlerochit reservoir, is exempt from the tax, as is any oil produced from a well located north of the Alaskan-Aleutian mountain range and more than 75 miles from the Alaska pipeline.¹¹ Certain tertiary oil freed from regulation for purposes of front-end financing is exempt from the tax until September 30, 1981.¹²

Tier three oil is subject to a 30 percent tax on the difference between the actual selling price of the oil and \$16.55, adjusted for inflation plus two percent and for differences in quality and location.¹³ This oil consists of (1) newly discovered oil, (2) certain heavy oil, and (3) incremental tertiary oil.¹⁴ Newly discovered oil is oil from (1) an outer continental shelf area for which the lease was entered into on or after January 1, 1979, or (2) an onshore property from which no oil was produced in calendar year 1978. Heavy oil is defined as oil with an API specific gravity of 16 degrees or less.¹⁵ Incremental tertiary oil is tertiary production in excess of a base level.¹⁶ The base level is average daily production of the property in question for the six-month period ending March 31, 1979, reduced by the sum of one percent for each post-1978 month up to the project beginning date and 2½ percent for each month thereafter.¹⁷

Independent producers are allowed reduced tax rates on so much of their combined production of tier one and tier two oil as does not

7. A National Petroleum Reserve is a deposit of oil designated by the federal government as a reserve for use only in specified emergencies (e.g., war).

8. 26 U.S.C.A. § 4991(a)-(e) (1980).

9. *Id.* § 4987(b), 4989(d).

10. *Id.* § 4991(d).

11. *Id.* § 4994(e).

12. *Id.* § 4994(c).

13. *Id.* §§ 4987(b), 4989(d).

14. *Id.* § 4991(e).

15. *Id.*

16. *Id.* § 4993(a).

17. *Id.* § 4993(b).

exceed 1,000 barrels per day.¹⁸ For them the tier one rate on this oil is 50 percent, and the tier two rate is 30 percent.¹⁹

The windfall profit tax applies to increased income from royalty interests as well as operating interests. However, exempt from the tax is an oil interest held on January 21, 1980, by or for the benefit of an Indian, an Indian tribe, or an Indian tribal organization meeting certain qualifying requirements.²⁰ Also exempt is oil production owned by state and local governments if the proceeds are used for a public purpose.²¹ Finally, oil produced from properties owned by charitable medical facilities and educational institutions, or dedicated to them by churches, is exempt from the tax if the properties were owned by the charity on January 21, 1980.²²

For taxpayers generally, the windfall profit subject to tax is limited to 90 percent of the net income from a property.²³ The windfall profit tax is a deductible business expense for purposes of ordinary income taxation.²⁴ For purposes of computing percentage depletion,²⁵ where it still applies, gross income from the property is not reduced by the windfall profit tax.²⁶ The tax is reduced by the amount of state severance taxes on the windfall profit. Increases in state severance tax rates after March 31, 1979, are taken into account only if the increases apply equally to the entire price of the barrel of oil, and only to the extent that the total rate of severance tax imposed by the state does not exceed 15 percent.²⁷ As earlier noted, base prices are to be adjusted periodically for inflation; the GNP deflator is the measure of inflation used for this adjustment.²⁸

In general, then, the crude oil windfall profit tax is a percentage of the difference between the actual selling price of oil and certain base prices derived loosely from regulatory experience. The tax gets its name from the implicit assumption that increases in price above the base levels confer windfall profits on oil operators and landowners, profits that can be taxed away without materially reducing incentives to produce.

Before commencing analysis regarding incidence and effects, con-

18. *Id.* § 4992(c).

19. *Id.* § 4987(b).

20. *Id.* § 4994(d).

21. *Id.* § 4994(a).

22. *Id.* § 4994(b).

23. *Id.* § 4988(b).

24. *Id.*

25. Percentage depletion is a special deduction for tax purposes, now allowed only for small independent oil producers, equal to a percentage of gross income.

26. See 26 U.S.C.A. § 4988(a) (1980).

27. *Id.* § 4996(c).

28. *Id.* § 4989(b).

sider the determination of oil prices in the United States in the absence of regulation.

OIL PRICE DETERMINATION AFTER DEREGULATION

For purposes of this discussion, we shall abstract from differences among old regulated prices of oil and speak of "the" regulated price. Similarly, we shall abstract from differences among prices charged by exporting countries, chiefly members of OPEC, and speak of "the" world price.

Figure I shows the price situation prior to deregulation. DD is the demand curve for the United States. $S_1 S_1$ is the long run domestic supply curve (long run marginal costs) exclusive of royalty. The dashed curve $BAS_1 + R$ is the long run supply curve plus royalty, the latter assumed to be a fixed fraction—say, $1/8$ of the regulated price OP_r . The domestic industry is assumed to be in long run equilibrium with output at OQ_1 , where long run marginal costs plus royalty are equal to the regulated price.

Imports occur at the world price, OP_w , of course. The two prices are effectively reduced to one by means of the "entitlements" system. Refiners are issued rights to run²⁹ domestic oil proportionate to their total runs, but limited in sum to domestic output. Importing refiners find themselves with a surplus of rights, while refiners with access to domestic oil have an equal deficit. Importing refiners sell their rights to domestic oil refiners for an amount equal to the difference between the regulated and the world prices. The result is that all refiners pay the same net price for the oil they run, here assumed to be OP_a , whether they run domestic oil exclusively or imported oil exclusively, and their competitive relations are undisturbed. At the average effective price of OP_a the total quantity demanded is OQ_2 and imports are $Q_1 Q_2$.

It is useful to note in passing that in achieving long run equilibrium operators tend to pay landowners the triangular area ABC in the form of lease bonuses, so that total rent paid is the four-sided area ADEC.

Now suppose that domestic prices are suddenly and unexpectedly deregulated. Figure II depicts the situation. The demand and supply curves are as before, except that we have added a short run supply curve (short run marginal costs) that is anchored to the previous rate of output and is a great deal less elastic than the long run curve. Deregulation causes prices to rise to the world level and they cannot

29. Rights to run are legal entitlements under current price regulation, evidenced by a certificate, to run domestic oil in refineries. "Run" is used in the industry as both a verb and a noun and refers to the input of crude oil in the refinery process.

FIGURE I
PRICES AND OUTPUT IN THE UNITED STATES WITH
PRICE REGULATION

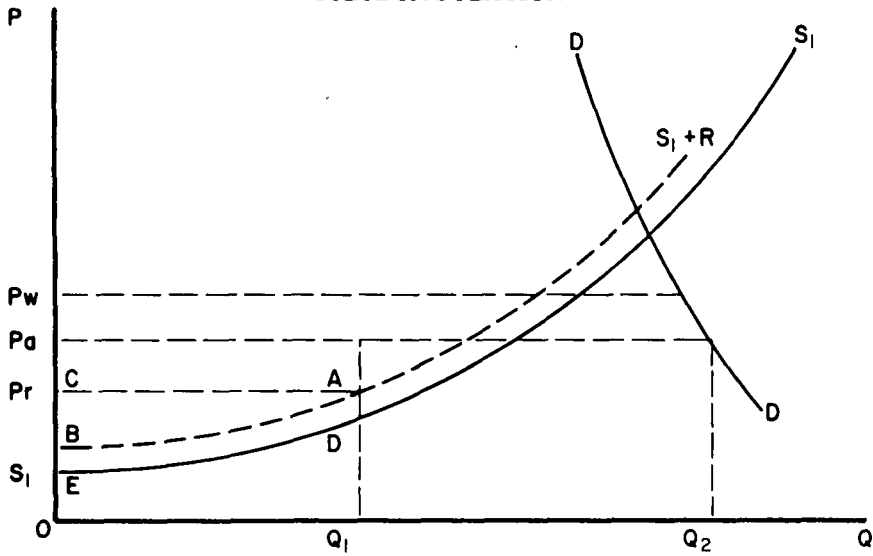
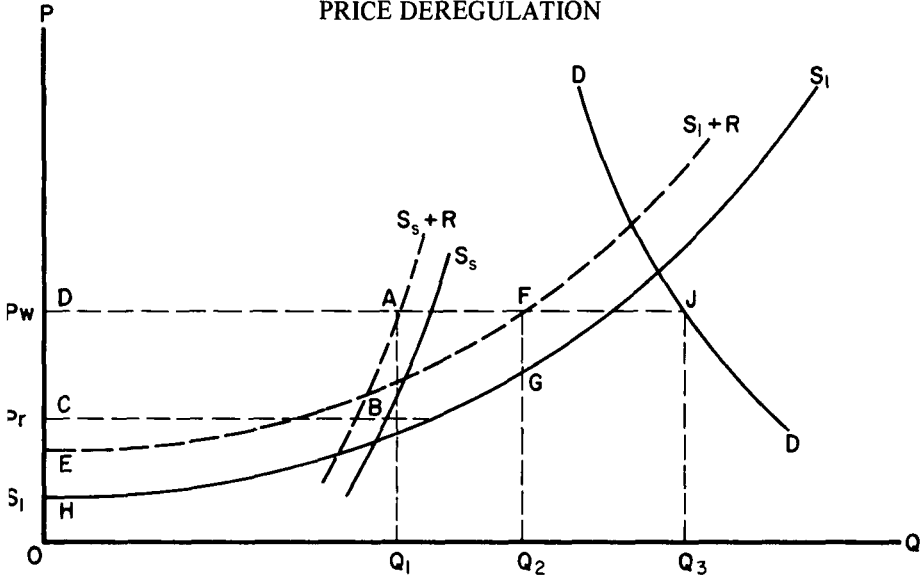


FIGURE II
PRICE AND OUTPUT IN THE UNITED STATES WITH
PRICE DEREGULATION



thereafter significantly differ from it, since imports are perfect substitutes for domestic oil. The absolute size of the royalty, now based on the higher world price, is greater than before. In short run equilibrium domestic output is OQ_1 , hardly different from that under regulated prices. Since the rise in price was unexpected, operator profits are increased by the area ABCD. This is a classic "windfall" that is shared by royalty interests, since the royalty rises in proportion to the rise in price.

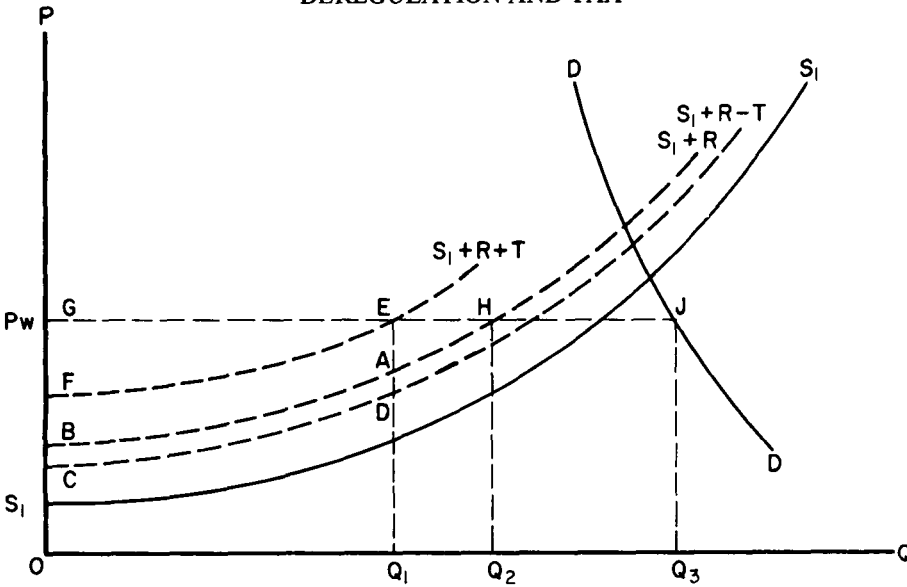
In the long run, however, as the industry expanded its exploration effort, domestic output would rise to OQ_2 , where long run marginal costs plus royalty are equal to the world price, and imports would fall from Q_1Q_3 to Q_2Q_3 . In the process of achieving the long run equilibrium operators would tend to pay out to landowners the triangular area DFE in the form of lease bonuses. Total rent would be the four-sided area FGHD. Thus in the long run the "windfall" would accrue to landowners in the form of lease bonuses and increased royalty.

THE INCIDENCE AND MAJOR EFFECT OF THE TAX

We can now more clearly see how the burden of the tax is borne in the short and long runs. The situation is depicted in Figure III. For purposes of this figure it is assumed that the tax rate is uniform; its incidence is independent of the fact that the rate varies from tier to tier. To avoid unnecessary clutter, we have omitted the short run supply curve. The demand and long run supply curves are as before. The long run supply plus royalty curve is shown ($BAHS_1 + R$), and also shown is that curve reduced by the tax on the royalty ($CDS_1 + R - T$). The curve FE is the long run supply curve plus royalty plus windfall tax paid nominally by operators. The domestic price remains at the world level, since the effective domestic demand for domestic oil is perfectly elastic along GEHJ due to the perfect substitutability of imports for domestic production. Long run equilibrium is at point E, with domestic output equal to OQ_1 . The tax paid nominally by operators is ABFE, and that paid by landowners is ADCB.

As the discussion of Figure II indicated, in the short run it is the royalty and operator profits that are increased by price deregulation. Since with the tax the price is no higher than without it, the short run burden of the tax falls on landowners and operators in proportion to their respective gains. In the long run, however, operators would have tended to pay lease bonuses to landowners in the amount of GHB without the tax; with the tax they will tend to pay only GEF. The reduction in payments to landowners is the lease bonuses lost al-

FIGURE III
PRICE AND OUTPUT IN THE UNITED STATES WITH
DEREGULATION AND TAX



together (AEH), plus the tax paid nominally by operators (ABFE). Consequently, the long run burden of the tax is borne almost entirely by landowners, with operators suffering some loss in total profits due to the reduced scale of domestic output (from OQ_2 to OQ_1).

This conclusion is qualified somewhat by the fact that the tax will terminate after 10-14 years, depending on when a target sum has been raised.³⁰ The life of most oil properties, through stripper status and possibly secondary and tertiary recovery, is much longer. During the period of the tax there will not be time for operators to turn over the complete initial stock of producing properties and compete away excess profits in the form of lease bonuses. Thus in the intermediate run operator profits will remain abnormally high on many properties; and since the tax reduces these profits, its burden is to that extent borne by operators. We conclude therefore that the burden of the tax is on operators and landowners, with the burden on the latter increasing as time passes.

It may be observed that if in the absence of the tax deregulation in the United States would have lowered the world price, due to in-

30. 26 U.S.C.A. § 4990(c)-(d) (1980).

creased United States output in the long run, the world price is in effect raised by the tax, so that the burden of the tax is borne to some extent by worldwide consumers. As earlier suggested, our judgment is that the world price would be unaffected by simple deregulation in the United States. In the first place, any increase in United States output without the tax would be small relative to world supply, and the increase would occur slowly over a long period of time. Therefore, in the second place, increased United States output would not be likely to be a substantial consideration among the many political and economic considerations affecting the price deliberations of a less than monolithic OPEC cartel. In any case, we have no evidence that OPEC is a systematic profit maximizer that would alter both output and price in response to an "outside" change in supply. Our judgment is that any significant increase in United States output would be met by reduced output by the dominant world supplier in the cartel, Saudi Arabia. If we err in this judgment, then worldwide consumers share the burden of the tax with United States landowners.

As Figure III shows, the principal effect of the tax is to reduce domestic oil output below what it would have been with simple price deregulation. With simple deregulation, domestic output would have been OQ_2 , and imports $Q_2 Q_3$. With deregulation and the windfall profit tax, domestic output is OQ_1 and imports $Q_1 Q_3$. This is, of course, a perverse effect in the light of the supposed national policy of reducing dependence on foreign oil.

SOME SUBSIDIARY EFFECTS

Since the tax is not uniform, the domestic production of different classes of oil will be discouraged differentially. Least discouraged will be oil exempt from the tax (certain oil produced in north Alaska) and oil subject to the lowest tax rate of 30 percent (newly discovered oil, certain heavy oil, and incremental tertiary oil). Most discouraged will be oil subject to the highest rate of 70 percent, generally oil discovered prior to 1979 except for stripper and National Reserve oil subject to the 60 percent rate. These differential rates mean some distortion of resource allocation within the domestic industry and thus some loss of general economic efficiency. It is, of course, at the margins that different classes of oil will be differentially affected in the longer run, since economic rents bear the main part of the burden.

There will also be some distortion as between small independents and major producing companies. The former are accorded lower tax rates on the first 1,000 barrels per day of production, and this effect is magnified by the allowance of percentage depletion, still available

to small independents, on the price gross of windfall profit. Independents will probably displace "majors" in many barely supramarginal oil operations.

Finally, as earlier noted, windfall profits subject to tax are reduced by state severance taxes on the windfall so long as the state severance tax rate does not exceed 15 percent. This is an invitation for the states to raise their severance tax rates to this maximum level, for by doing so they increase their revenues largely at the expense of the United States treasury,³¹ without raising prices to consumers. One may predict that the producing states will respond positively to this invitation.

CONCLUSION

We believe the incidence of the oil windfall profit tax falls on operators and landowners, with the latter bearing an increasing burden as time passes and operators turn over the initial stock of producing properties. The tax results in reduced domestic output and increased imports, relative to a situation of simple deregulation of prices. Other effects are some distortion in the allocation of resources within the domestic industry and a tax windfall for state governments at the expense of the United States treasury.

31. Operators and landowners would have to pay the additional severance tax on the base price, but not on the windfall.