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THE INCIDENCE OF AN AMERICAN OIL SEVERANCE TAX UNDER WORLD PRICING BY OPEC: A NOTE

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Usually it is argued, and correctly, we believe, that in an economy effectively insulated from oil imports a general oil severance tax is borne almost entirely by consumers.[1] Like an excise tax on a single commodity, the tax raises both short- and long-run marginal costs, shifting the industry's short- and long-run supply curves upward on the price axis. Given a quite inelastic national demand curve for oil, the effect is to raise the equilibrium oil price by almost the amount of the tax (the full amount of the tax if the demand curve is perfectly inelastic). To the extent that the demand curve has some elasticity, the margin of oil exploitation is contracted and some of the tax falls, in the long run, on land owners in the form of reduced rent (lease bonus plus royalty). This is the result given by partial equilibrium analysis, which is adequate for a problem of the present sort.

If the oil severance tax is levied by all producing states but production is confined to a few states only, then the latter jurisdictions can in effect shift some of the tax burden to consumers in other states. Thus it generally is believed in the Southwestern states that the burden of their oil severance taxes is borne largely by consumers in other states.[2]

The conclusion is somewhat different in the case of an oil severance tax levied by only one state producing a portion of the national output of oil. The state confronts a demand curve that is more elastic than the industry's curve, since the output of other areas is a close substitute for its product, and more of the tax is borne by land owners in the taxing state in the long run.[3] By tending to raise the relative price of oil in the taxing state, the tax increases the demand for oil in other jurisdictions, raising prices and increasing land owners' rents there. Thus the burden of the tax is borne partly by land owners in the taxing state and partly by consumers in all states,

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1. *See, e.g.*, B. HERBER, MODERN PUBLIC FINANCE 229 (4th ed. 1979).

2. All of the Southwestern states of Texas, Louisiana, Oklahoma, and New Mexico, have oil severance taxes. It has been estimated that 50 percent of the Texas tax is exported. M. TOLLESON, TEXAS ENERGY ISSUES 1978, at 60 (1979).

3. McLure, *Economic Constraints on State and Local Taxation of Energy Resources*, 31 NAT'L TAX J. 257, 257-59 (No. 3, Sept. 1978).

with the incidental effect of increasing rents in the non-taxing states. The relative size of these effects depends upon the share of the industry's capacity accounted for by the taxing state. If the share is large, then the state's demand elasticity need not differ much from the industry's, rents in the state will not decline much in response to the tax, and the increase in prices and rents in other states will be relatively greater. If the share is very small, the state's demand elasticity will approach infinity, rents in the state will bear nearly all of the burden of the tax, and the rise in prices and rents in other states will be minimal.

These comments on an oil severance tax levied by a single jurisdiction within a larger producing whole are relevant to the situation in which the United States presently finds itself. Since the abandonment of oil import controls in 1973 the U.S. oil industry has not been insulated from imports, and only price controls have kept the domestic price of oil from being equal to the world price determined and enforced by OPEC.[4] Imports being near-perfect substitutes for domestic oil, the elasticity of demand for domestic oil approaches infinity at the price determined by OPEC. If freed of controls, the domestic price of oil cannot rise above the world level, regardless of changes in marginal costs and shifts in the domestic supply curve; and it must be assumed that the world price, determined as a monopoly price by OPEC, is independent of marginal costs in the United States. Given the world price, the higher are marginal costs in the United States for whatever reason, including a severance tax, the lower must be rents. In this sense, the full burden of the severance tax is borne by land owners as recipients of rents.

As the United States decontrols oil prices, its situation may be represented by the diagram in Figure I. DD_{us} is the long-run demand for oil in the United States; SS_{us} is the long-run supply from domestic sources in the absence of a severance tax. P_{opec} is the OPEC-determined free price in the United States, which is below the price at which domestic supply would satisfy domestic demand. At the OPEC-determined price the domestic demand for domestic oil is perfectly elastic along AG. Q_{tot} is the total quantity of oil demanded at the OPEC price, of which Q_{us} is supplied from domestic sources and the difference between Q_{us} and Q_{tot} is imported. Long-run rent paid

4. Reference to a single OPEC price is a simplification. As Walter Mead has reminded this writer, there are at present several different OPEC prices in different member countries, and there are spot prices determined in the market subject to OPEC production restraint. The important point, however, is that the OPEC prices are determined independently of long-run marginal costs in the United States.

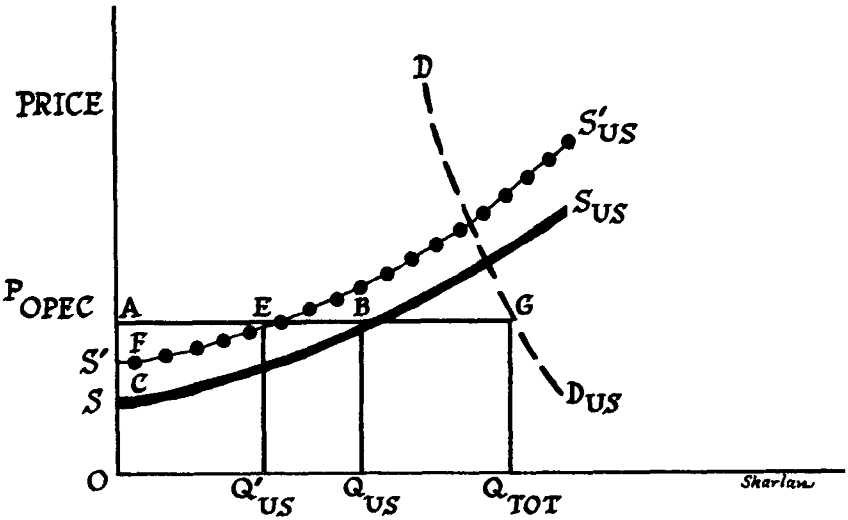

FIGURE I

Incidence of an American Oil Severance Tax

to domestic land owners (lease bonus and royalty) is the area ABC, or the excess of price over long-run marginal cost. With a severance tax equal to CF, the domestic supply curve becomes $S'S'_{us}$. The price goes no higher, but the quantity domestically supplied falls to Q'_{us} and imports correspondingly increase. Long-run rent falls to the area AEF. Consumers bear no more burden because of the tax; land owners bear all of the increased burden in the form of reduced rent.

It does not matter to the analysis that the severance tax antedates the OPEC-determined price, and that the large rise in price since 1973 greatly increased the rents received by U.S. land owners. Had it not been for the severance tax, the price revolution would have resulted in still greater rents to land owners, and the difference would have been the difference between ABC and AEF. In the relevant sense, then, the burden of the tax falls, in the long run, on land owners under OPEC pricing.

The results are similar if the severance tax is levied by a single state, whether a large or a small producer, or if a particular state levies a differentially high severance tax. The state can succeed only in contracting the margin of exploitation in its jurisdiction and reducing its land owners' rents.

As the United States deregulates the price of oil and OPEC continues to price in its own interests, it no longer can be assumed that the oil severance tax in the United States is paid largely by consumers, that through the tax the oil producing states finance themselves partly at the expense of consumers in other states. No longer can it be assumed that a state accounting for a large share of a nation's oil producing capacity can, with little loss to its own land owners, levy a differentially high severance tax. In the long run the tax reduces rents and increases imports, without any effect on price; and a differential tax by a given state contracts the margin of exploitation and reduces rents differentially in that state, without any effect on price.