

OIL TAXES AND THE ECONOMY

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In CBO's *The Economic and Budgetary Effects of Oil Taxes*, it was assumed that nominal GNP would be unaffected by the imposition of various oil taxes. The assumption that nominal GNP does not deviate from its baseline path in response to changes in tax policy is a convention used in many revenue estimation procedures, including CBO's and those of the Joint Committee on Taxation and the Treasury Department, among others. In these analyses, this assumption is made as a convenience and is not meant to be a prediction of an economic outcome. In this case, however, the convention of unaffected nominal GNP is a tenable assumption in the long run. While not likely to obtain precisely in the short run, it is still a reasonable approximation under a wide range of circumstances. But, obviously, the assumption that nominal GNP remains constant does not imply that real GNP remains constant. As will be explained below, it can be higher or lower in the long run and is likely to be lower in the short run.

The effects on short-term GNP were not the focus of CBO's analysis. CBO's study emphasized the long-term aspects of the economy's adjustment to oil taxes. The long-run effects of an oil tariff are the subject

of general agreement among economists. With a constant monetary policy, nominal GNP remains essentially unchanged in the long run, since enough time passes to allow all prices in the economy to adjust to the shock of the oil tax. Specifically, the prices of non-oil goods overcome whatever price rigidity exists in the economy and are allowed to fall relative to their levels in the absence of a tariff. When they do, the price level moves toward its previous path, although relative prices have changed.^{1/} If the price level in the long run remains the same, then any long-term change in nominal GNP will depend on the long-term level of real output. Conversely, if nominal GNP growth rates are held fixed, the average price level must rise or fall depending on whether real GNP growth rates are lowered or raised.

The effect of an oil tariff on the long-run level of output--real GNP--depends on the resolution of a number of conflicting factors. Imposing a tariff on oil imported into the United States leads to an efficiency loss as high-cost domestic oil production replaces cheaper imports. Output is lowered (for example, lower export sales) in those sectors that use oil or energy extensively as an input. This effect is discussed in CBO's report. On

1. The price level could be disturbed in the long run if monetary policy somehow changes in response to the oil tax. For the purposes of this analysis, however, the growth of the supply of money is assumed to be fixed when comparing the economy with and without the oil tax.

the other hand, the beneficial effects of deficit reduction also occur in the long run, as national savings increase. This will be conducive to higher long-run investment and growth. A final uncertain factor is the extent to which an oil tariff lowers the world price of oil. Unless foreign producers countervail the entire U.S. reduction in oil import demand with supply cutbacks, some reduction in the world price is to be expected. Any such reduction increases long-run real GNP by transferring income from foreign oil producers to U.S. consumers and the U.S. government. The extent to which these various factors countervail each other is uncertain. If the market power of oil producers were to be reestablished in coming years, for example, the beneficial aspects of an oil tariff would decline. If the composition of the economy were, for reasons unrelated to the tariff, to shift away from goods requiring oil in their production, the costs of the tariff would decline as well. But, under a broad range of assumptions, the various forces tend to offset each other and it is difficult to imagine real GNP undergoing large deviations from its baseline path in the long term.

The fact that real GNP does not diverge greatly from its baseline path in the long term masks the fact that the composition of the economy would change. Regions, industries, and individuals that disproportionately use oil would lose income to oil-producing regions and firms. Thus, some sectors of the economy and some regions would experience economic losses, even if

the economy in the aggregate did not. CBO's study estimates the size of these losses by region and income group.

In the short run, however, both real and nominal GNP must adjust before they return to their long-term paths. Specifically, to the extent that price rigidities exist in the economy, the imposition of an oil tariff suggests that short-term nominal GNP will rise and short-term real GNP will fall. There is no clear consensus among economists, however, about the length and depth of this adjustment.

In the short run, an oil import fee, like any tax, reduces real consumer incomes and, according to many analysts, reduces real GNP unless the increase in government revenues is promptly respent. Unlike income taxes, however, an oil import fee tends temporarily to raise overall prices, because oil prices immediately rise while other prices do not fall quickly enough or far enough to keep the overall price level constant. The higher price level raises nominal GNP and, along with it, the demand for cash to finance the larger volume of transactions. Economic theory and past experience suggest that if monetary growth is unchanged (the usual CBO assumption), then the greater demand for money may cause interest rates to rise, thus temporarily reducing real GNP. If real GNP adjusts slowly and non-oil prices are slow to decline, there may be a temporary rise in nominal GNP.

But the rapidity and magnitude of such adjustments are again uncertain. The reduction in real GNP tends to lower nominal GNP, while the increase in prices tends to raise it, so that the impact on nominal GNP, if any, is likely to be small.

Some analyses, such as that conducted by the Energy Information Administration (EIA) of the Department of Energy, suggest that the decline in real GNP is large and long-lasting. In the case of the EIA analysis, this belief appears to depend on two important assumptions.

While the EIA study suggested that "the imposition of a \$5 per barrel oil import tariff could reduce domestic oil demand and supply sufficiently to account for a \$1 to \$2 per barrel drop in [world] oil prices by 1990," the macroeconomics portion of its analysis assumed a constant oil price.^{2/} In contrast, CBO assumed that an oil price decline of between \$1 and \$2 per barrel would occur quickly, and therefore included it in its revenue estimates. If EIA had made this assumption in its macroanalysis, its

2. See Energy Information Agency, *The Impact of Lower World Oil Prices and Alternative Energy Tax Proposals on the U.S. Economy* (April 18, 1986), p. 59.

computed real GNP decline and its observed increase in the overall price level would have been less by approximately one-third, representing the amount of the tariff that CBO and EIA appear to concur is subject to absorption by foreign oil producers.

CBO assumed that world oil prices would decline in response to an oil tax for the following reasons. In order for foreign oil producers to shift the entire oil tariff forward to consumers (the assumption incorporated in EIA's simulation), they would have to reduce their production by the reduction in U.S. oil import demand that occurred in response to the tariff. But foreign oil producers have failed in their recent attempts to enforce output ceilings. Moreover, as noted in recent industry publications, some oil producers are now tailoring their production to achieve a desired level of cash receipts.^{3/} OPEC's Ministers now speak of an OPEC output floor in order to preserve their market share.^{4/} Under these circumstances it must be assumed that foreign oil producers' supplies are, for all practical purposes, fixed, and that in order to sell this fixed supply, they would be forced to lower their prices.

3. See "Saudi Sales Policy Now Dictated by Cash Flow Needs," *Petroleum Intelligence Weekly* (June 2, 1986).

4. *Ibid*, p. 3.

In fact, if oil prices were to fall, some producers might actually expand their output in order to achieve their cash targets, which would lead to a decline in the world oil price yet greater than that assumed by CBO.

The actual proportion of the tariff absorbed is calculated as follows. Assuming that demand elasticities are the same in all consuming nations, it can be demonstrated that the proportion of the world price that foreign producers will absorb is equal to the U.S. share of world oil demand, or approximately 33 percent. But this calculation ignores the fact that U.S. supply increases as well, which makes the U.S. demand for imported oil more elastic and increases the oil available for other nations. This increases the proportion of the tariff absorbed by foreign producers from 33 percent to 37 percent. Other analyses, using these assumptions, have reached similar results.^{5/}

A second major assumption made by EIA is that the increased incomes and wealth of domestic oil producers do not offset a significant part of the real income loss of domestic consumers. In contrast, CBO has assumed

5. See *Pemex Information Bulletin* (March 1986).

in past analyses that the offset is significant.^{6/} An oil import tariff would bring about a substantial transfer from domestic oil users to domestic owners of oil resources. The EIA approach, and that of many macro-economic models, implies that such a transfer among industries and consumers reduces aggregate spending by a large amount. Consumption spending falls quite quickly in response to lower real consumer disposable income, while the routes by which increased business income affects the economy are less direct. Increased oil producer income affects spending in the DRI model used by EIA mainly by improving the cash flow of the corporate sector and thus easing corporate financing constraints, and to a much lesser extent by raising the stock market value of oil firms, and thus increasing household wealth.^{7/} In the simulations, the increased spending by oil producers offsets little of the decrease in consumption by oil users.

This is a very controversial finding that is unlikely to obtain in the long run and is questionable even in the short run. Most analysts agree that

6. See CBO, *The Economic and Budgetary Effects of an Oil Price Decline* (March 1985).

7. The DRI model has been changed since the version used by EIA, and now contains a special equation for the investment spending of the oil industry. It is probable that, in this new model, investment in the oil industry would respond more strongly to changes in oil prices so that the transfer from oil consumers to oil producers would reduce aggregate spending by less than it does in the EIA analysis.

transfers among economic actors are not likely to have identifiable long-run effects on aggregate demand.^{8/} CBO employs the assumption that, even in the short run, such transfers have much smaller effects than do taxes, or changes in the terms of trade with foreigners. Transfers caused by increased domestic oil prices will have a real effect on the economy only if consumption by oil users declines more rapidly than investment by oil firms increases and consumption by the owners of oil firms increases. If both oil consumers and owners of oil resources expect the tariff to be permanent, the expected permanent income (or real wealth) of one group is decreased by about as much as that of the other is increased, and the spending of both groups might respond similarly.^{9/ 10/} Thus, it appears necessary to postulate a systematic difference between the expectations or spending behavior of oil producers and those of oil consumers in order to get a predictable change in total spending from this source. There may, of

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8. Of course, the increased price of oil will tend to stimulate increased domestic oil production, and will impose costs on other domestic producers and consumers, even in the long run. Here we are considering only the distributive effects of the tariff.
 9. The DRI macroeconomic model, in common with many others, probably understates the extent of the increase in household wealth that follows from an increase in the value of domestic oil resources.
 10. Conversely, if both groups expect the tariff to be temporary, oil consumers will not change their consumption of other things by very much. Note that this discussion analyzes only the effects of transfers from oil users to oil producers. The users also lose because of the tariff on imported oil.

course, be such differences, but the response of oil industry investment to the price decline in the spring of this year suggests that oil company investment can move quite quickly when oil prices change. Arguments that depend on differences in the time patterns of responses in the two sectors may in addition be less relevant if a tariff is imposed soon after a large oil price decline such as the one that occurred this spring. This difference between the CBO and EIA approaches is again significant, since a substantial part of the initial spending reduction in the EIA approach comes from this source.

Finally, it should be noted that the effects of changes in world oil prices and changes in oil import tariff levels are quite different. That is, the negative effect on the economy of a one-dollar increase in oil import tariff levels is not as great as the negative effect of a one-dollar increase in the world oil price. The difference lies in the fact that the federal government can, under an oil tariff, use revenues that would otherwise accrue to foreign oil producers for the purposes of deficit reduction. A lower federal deficit reduces the extent to which the federal government must draw on domestic or foreign sources of saving, thus enhancing the prospects for capital formation and economic growth. On the other hand, foreign producers gain a large portion of the benefits of a higher world price, thus unambiguously leaving U.S. residents with lower wealth and fewer prospects for improvement in living standards.

