

# ECONOMIC COMMENTARY

## Implications of a Tariff on Oil Imports

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The sharp drop in oil prices from \$30 per barrel in November 1985 to about \$15 recently has sparked efforts in Congress to enact a tariff on imported oil.<sup>1</sup>

Proponents argue that such a tariff would help reduce the federal budget deficit, that it would help cut the foreign trade deficit, and would prop up a sagging domestic oil industry. However, our analysis indicates that while the tax would certainly contribute somewhat on all three of these counts, on balance it is probably a bad idea.

The tax would reduce real economic growth, raise the overall price level, subsidize domestic petroleum production at the expense of the rest of the nation, hurt oil exporting nations—particularly heavily indebted ones such as Mexico—and move the world further away from the economic efficiencies of free trade.

In this *Economic Commentary*, we examine the implications of an oil tariff as seen in the context of a hypothetical \$10 per barrel increase in the tariffs on crude oil and refined oil products.

### Effects of an Oil Tariff

The main argument usually offered in support of an oil import tariff is that its revenues would help reduce the federal budget deficit, which for fiscal years (FY) 1987 and 1988 could be \$184 billion and \$150 billion, respectively.<sup>2</sup>

An initial estimate of how much an oil import tariff could reduce the federal budget deficit can be made by calculating the revenue the tax would raise directly. The latest annual forecast of the U.S. Department of Energy (DOE) estimates that if the post-tax price of imported oil in 1987 was \$23 per barrel, imports of crude oil and refined oil

**Table 1 Economic and Budgetary Effects of a \$10 per Barrel Tax on Imports of Crude Oil and Refined Petroleum Products**

<u>Change caused by the tariff in:</u>	<u>FY 1987</u>	<u>FY 1988</u>
Federal tax revenue	\$23.7 billion	\$28.1 billion
Federal budget deficit	-\$17.2 billion	-\$10.0 billion
Growth rate of real GNP	-0.1% points	-0.6% points
Inflation rate (GNP implicit deflator)	0.7% points	1.2% points
Real net exports of goods and services	\$9.6 billion	\$19.2 billion

SOURCE: Federal Reserve Bank of Cleveland.

products would be 1.73 billion barrels in calendar year 1987.<sup>3</sup> Thus, if a \$10 per barrel oil tariff brought prices to this level, it would provide the federal government with additional revenue of about \$17 billion in FY 1987.

However, the amount by which an oil import tariff would reduce the deficit depends on more than just the revenue it raises directly. It also depends on the changes in federal revenues and spending brought about by the tariff's effects on overall economic activity and prices. Some of these potential changes are difficult to predict. In an attempt to determine a complete range of economic and budgetary effects, we imposed a \$10 oil import tariff on a large-scale econometric model of the U.S. economy and simulated the results.<sup>4</sup>

According to our projections, during the course of the first two years following its imposition, a \$10 per barrel oil import tariff would lower real national output by \$33 billion. The growth rate of real (1982 dollars) gross national product (GNP) would be reduced by 0.1 percentage points in the first year and by 0.6 percentage points in the second year (table 1). At the same time, the tar-

iff would add about 0.7 percentage points to the rate of inflation during the first year and 1.2 points during the second year. Overall, then, nominal GNP would be greater with the tariff, but only because prices would be higher.

The combination of lower real GNP and higher inflation would have mixed effects on the federal budget deficit. The reduction in real economic activity would raise federal outlays for unemployment compensation; higher prices would also increase federal costs. Thus, federal expenditures would rise by over \$6 billion in FY 1987 and by more than \$18 billion the following year. On the other hand, a boost in the inflation rate also raises nominal incomes, which yields greater individual income tax receipts. And, with oil prices higher, more revenue would be generated by the windfall profits tax.

When the direct and secondary effects of a \$10 per barrel oil import tariff are estimated, the projected result is that the federal deficit is reduced by about \$17 billion in FY 1987 and by roughly \$10 billion in 1988 (table 1). Given that the gaps between the projected deficits and the Gramm-Rudman-Hollings (GRH)

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1. A number of bills that would levy a tariff on oil have been introduced in Congress. For instance, S.1412 would impose a \$10 per barrel tariff on imports of crude oil and refined petroleum products. Existing tariffs range from 5.25 cents to 10.5 cents per barrel of crude oil and from 5.25 cents to 80.0 cents per barrel of refined products.

2. Congressional Budget Office, *The Economic and Budget Outlook: An Update, A Report to the Senate & House Committees on the Budget*. August, 1986, p. 23.

3. *Annual Energy Outlook*, March 5, 1986. U.S. Department of Energy.

deficit targets in those two fiscal years are \$40 billion and \$42 billion, respectively, the tax would not come close to solving the budget deficit problem.

When weighed against the loss of real economic activity and higher prices, the tax seems too high a price to pay.

But there are other potentially favorable effects of an oil import tariff that must also be considered. One is the contribution it might make toward reducing the massive U.S. trade deficit.

The trade balance would be affected by an oil import tax in several ways. On the positive side, oil import volume would tend to fall because the oil price would be higher by the amount of the tax. On the negative side, the higher prices for oil would put U.S. firms at a disadvantage, relative to their foreign competitors, to the extent that they use oil for energy or as a raw material. This would encourage imports and discourage U.S. exports of oil-intensive products. Moreover, any retaliatory tariffs imposed by oil-exporting nations also would reduce U.S. exports.

Our simulation indicates that the net effect of a \$10 per barrel tariff would be to increase real U.S. net exports of goods and services by \$9.6 billion in FY 1987 and by \$19.2 billion in FY 1988. This improvement is rather small relative to the size of the real net exports deficit, which was \$151 billion at a seasonally adjusted annual rate (saar) in the second quarter of 1986. But more importantly, the main reason for wanting to increase net exports is to contribute to growth of real GNP and, as explained above, the tariff's overall effect would be to *reduce* growth of real GNP. Thus the improvement in net exports would be a false victory.

Some tariff proponents expect that a tariff would enhance energy independence by discouraging oil consumption and oil imports and by spurring domestic oil production.<sup>5</sup> However, it is not at all clear that greater energy independence would be achieved. The tariff would certainly make oil and oil products more expensive, thereby encouraging conservation of oil through switching to other energy sources, by reducing demand for energy-intensive services, and by acquiring a more fuel-efficient capital stock.

4. The results of a simulation are sensitive to the model that is used and to the assumptions that are fed into the model, and should be used cautiously. However, the results from this simulation are within the rather broad range of results found by other studies. See Congressional Budget Office, *The Budgetary and Economic Effects of Oil Taxes*, April 1986; Ronald H.

**Table 2 Principal Exporters of Oil to the U.S.<sup>1</sup>**

(Percent of Total U.S. Oil Imports)

1979		1985	
Exporting Country	% of Total	Exporting Country	% of Total
Saudi Arabia	16%	Mexico	16%
Nigeria	13	Canada	15
Venezuela	8	Venezuela	12
Libya	8	United Kingdom	6
Algeria	8	Indonesia	6
Canada	6	Nigeria	6
<b>Memo</b>			
Total OPEC	67%	Total OPEC	36%
Total Arab OPEC	36	Total Arab OPEC	9

1. Includes crude oil and petroleum products.

SOURCE: Energy Information Administration, *Monthly Energy Review*, February 1986.

Furthermore, a tariff would enable domestic oil producers to charge higher prices, thus stimulating domestic exploration for new sources of oil. However, energy independence is most valuable when it means that domestic oil is available in time of emergency. Therefore, a tariff would be counterproductive to the extent that it encouraged production from limited domestic reserves during periods that are not emergencies and when foreign oil is readily available.

Two other aspects of energy security involve diversity of foreign supplies and the U.S. strategic petroleum reserve. U.S. dependence on Organization of Petroleum Exporting Countries (OPEC) oil has fallen in recent years because of increased foreign production outside of OPEC (see table 2). However, as explained below, the tariff would push down the world price of oil, thereby discouraging exploration for oil in other countries. This would reduce the opportunity for diversity of supply that contributes to energy security.

On the positive side, the tariff would increase the amount of oil the government could purchase to stockpile with any given expenditure. Partly in response to the oil embargo in the mid-1970's, a strategic petroleum reserve was established and is being expanded to enhance U. S. energy independence. A tariff would lower the net cost to government of adding to this stockpile

Schmidt and Roger H. Dunston, "Effects of Reducing the Deficit with an Oil Import Tariff," *Economic Review* Federal Reserve Bank of Dallas, September 1985, pp. 15-24; Congressional Budget Office, *Reducing the Deficit: Spending and Revenue Options, part 2 of 1986 Annual Report*, March 1986, pp. 232-234.

because the government would in effect pay the tariff to itself while having the benefit of paying the lower price that foreign suppliers would be charging for their oil.

In summary, a tariff would reduce current use of imported oil and would cause limited U. S. deposits of oil to be used faster. It would also reduce the opportunity for diversity of supply, but would make a larger stockpile more affordable. It seems unlikely, however, that the tariff, on balance, would enhance the nation's ability to respond to a future energy emergency. The goal of energy independence, then, is not a convincing argument for a tariff.

Another argument advanced in favor of a tariff is that it could help the nation avoid some of the adjustment costs associated with widely fluctuating oil prices. Tariff proponents reason that when oil prices fall sharply, consumers would respond by adjusting their energy-consuming capital stock (cars, houses, etc.) to use more oil-generated energy and, when high energy prices return, they would have to readjust. A flexible tariff that could smooth out the price fluctuations might avoid these costly adjustments.<sup>6</sup>

However, if consumers expected the price decline to last only a short time, they would not change their consumption habits. Thus, a flexible tariff can be defended on the ground of avoiding these consumer adjustments only if (1) it is certain that the price decline is

5. National security was the legal justification given for the restrictions on oil imports imposed during the Eisenhower Administration. See Douglas R. Bohi and Milton Russell, *Limiting Oil Imports: An Economic History and Analysis*, The Johns Hopkins University Press, 1978, pp. 61 and 64.

temporary, and if (2) the government knows this and consumers do not. Since consumers are likely to be about as present as government officials regarding oil prices, this part of the cost-adjustment argument for a tariff is not overly convincing.

The rest of the argument regarding cost-adjustment is slightly more credible. With the recent fall in oil prices, the oil exploration and production industries are adjusting by laying off skilled workers and shutting down wells because current low prices do not justify incurring exploration, production, and well-maintenance costs. These measures, while reducing near-term expenses, seriously impair long-term oil-production capacity.

Furthermore, as oil exploration and production activity declines, tax revenues for oil-producing states, especially Alaska, Oklahoma, Louisiana, and Texas, are falling, which might necessitate painful reductions in services and/or increases in taxes. If the oil price decline is only temporary, the changes will be unnecessarily costly and disruptive. But, if an adjustable oil tariff could be levied to smooth out price swings, some of these costs might be fully or at least partially avoided.

What makes the adjustment-cost argument tenuous right now, though, is that there is abundant unused oil production capacity in the world, even if it is concentrated in a few OPEC nations. Given this excess capacity, it is just as plausible that oil prices will remain low for a long time as it is that oil prices will soon rise. It is not clear, then, that it is sensible to use a tariff that, in itself, would create economic distortions in the hope that adjustment costs from potential price swings might be avoided.

The foregoing analysis gives the oil import tariff rather low marks on its purported benefits of reducing the budget and trade deficits, of enhancing energy independence, and of avoiding adjustment costs. Moreover, whatever benefits are achieved in these areas would be accompanied by a reduction in real GNP and a higher general price level for goods and services. But there are other disadvantages to consider as well. An oil tariff would also create domestic and international market inefficiencies, would hurt oil exporting debtor nations,

6. Senate bill S. 1997 provides for a price-smoothing tariff. It would impose a variable tariff equal to the difference between the world oil price and \$22.00 per barrel. The total price to U.S. buyers then could not fall below \$22.00 per barrel although it could exceed \$22.

**Table 3 Cost of Crude Oil and Natural Gas Per Dollar of Industry Output**

		(1977)
Rank	Industry	Cost Per Dollar of Output
1	Petroleum refining	0.720
2	Electricity/gas/water/sanitation	0.237
3	Chemicals	0.187
4	Plastics	0.118
5	Paints and allied products	0.091
6	Transportation and warehousing	0.067
7	State and local governments	0.067
8	Paper and allied products	0.062

SOURCE: The Detailed Input-Output Structure of the U.S. Economy, 1977. Volume 1, The Use and Make of Commodities by Industry. U.S. Department of Commerce (BEA).

would have an uneven burden across industries, states, and taxpayers, and would carry the potential for an administrative nightmare.

By pushing the domestic price of oil above its cost of production, an oil tariff would also cause less oil to be used than is justified by its cost of production, would cause greater use of substitutes, and would lead to greater investments in energy efficiency than are justified by the cost of producing refined petroleum products.

International market efficiency would also be reduced because an oil tariff would push the world further away from a system of free trade in at least three ways. First, there is the oil tariff itself. Second, the oil tariff could lead nations that sell oil and refined products to the United States to impose retaliatory tariffs on U.S. exports. Third, imposing a tariff would weaken the influence of the United States as an advocate of free trade in general.

Even though an oil import tariff would raise the price of oil paid by U.S. consumers, they would not bear the full burden of the tax. Some portion would be borne by foreign producers, since the tax will discourage U.S. imports of oil, thereby causing exporters to reduce the price they charge for oil.<sup>7</sup> Of course, the degree to which foreign producers will absorb the direct cost of the tariff depends upon how sensitive domestic and foreign supply and demand for oil are to price changes. Estimates by the Congressional Budget Office (CBO) sug-

7. Foreign oil producers might instead reduce production to prevent a price decline. The assumption here is that they would not cooperate sufficiently to make output reduction feasible.

gest that about 37 percent of an oil tax would be paid by a decline in the price received by foreign oil producers, and that the remaining 63 percent would be reflected in higher U.S. oil prices. The DOE estimates that the foreign cost would be 25 percent and the share reflected in U.S. price increases would be 75 percent. Given these two estimates, and the tariff revenue calculations discussed earlier, the direct amount of the tax that foreign producers could be expected to pay is between \$4.2 billion and \$6.4 billion in calendar year 1987.

However, shifting the burden of an oil tariff abroad is a double-edged sword. As their revenues decline, some heavily indebted oil producers may find it increasingly difficult to repay international debts. Consequently, the interruption of service on international debts may become more probable. Moreover, even oil-producing debtor countries that are not exporters to the U.S. are likely to be hurt, since the price of oil to *all* buyers will fall as a result of the tariff. This would happen because oil is a highly fungible commodity on the world market.

Those oil-exporting nations that are highly dependent on the U.S. market would tend to be hurt more than others—at first because of the time it takes to find new customers, and then permanently to the extent that the cost of transporting oil to the new buyers is higher than transporting it to the United States. The principal exporters of oil to the United States are listed in table 2.

Over the past decade, Middle East nations have become much less important

**Table 4 Consumption of Fuel Oil in Manufacturing Plants by State**

(1981)			
Rank	State	Barrels (millions)	Share (%)
1	New Jersey	15.9	10.3
2	Pennsylvania*	13.7	8.9
3	New York	11.5	7.5
4	North Carolina	10.8	7.0
5	Maine	10.0	6.5
6	Florida	8.0	5.2
7	Massachusetts	7.5	4.9
8	Virginia	6.1	4.0
9	Indiana	5.9	3.9
10	Georgia	4.9	3.2
17	Ohio*	3.5	2.3
24	West Virginia*	1.9	1.2
32	Kentucky*	0.7	0.4

\* Fourth Federal Reserve District State.  
SOURCE: U.S. Bureau of Census, 1982 Census of Manufactures.

suppliers, while Mexico has taken the leading role. A tariff would be particularly serious for Mexico because it is heavily dependent on oil exports to the United States for the revenue necessary to service its massive international debt.

Another undesirable effect is that oil tariff burdens would fall unevenly on domestic industries, regions, and taxpayers. The industries whose product costs would be most adversely affected

8. U.S. Department of Commerce, "The Input-Output Structure of the U.S. Economy, 1977," *Survey of Current Business*, May 1984, Volume 64, Number 5, pp. 42-84.

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can be identified from input-output tables, which show the levels of crude petroleum and natural gas used, directly and indirectly, per dollar of output of each major industry (see table 3).<sup>8</sup> The burden of the tax would weigh heaviest on the oil refining industry where 72 cents of every dollar of output produced in 1977 was derived from crude oil and natural gas.

The burden of an oil tax would fall disproportionately across states as well because of the uneven geographic distribution of oil-intensive industries and because of significant regional differences in home-heating fuel usage. Eastern seaboard states are likely to bear a higher burden because they consume proportionately more oil due to their relatively easy access to imported oil and to the high transportation costs for alternative fuels. For example, in 1981, the state of New Jersey consumed slightly over 10 percent of the total U.S. fuel oil consumed by manufacturing plants (see table 4).

The oil tax burden would also fall unevenly on groups, such as lower-income families, which spend proportionately more on gasoline and home-heating fuel oil than do higher-income families.<sup>9</sup>

If the tariff were imposed, its administration could be rather simple. But if the government were to try to alleviate the problems caused by the tariff, it

9. Consumers in the lowest income quintile, who are much less likely to own a vehicle and therefore spend proportionately less on gasoline, are an exception. See *Consumer Expenditure*

could lead to horrendous administrative difficulties. In the 1970's, when the price of oil shot up, the United States interfered with the free-market determination of petroleum prices and became enmeshed in a program with countless exemptions, exceptions, appeals, and entitlements that became an administrative, as well as an economic, nightmare.

### Conclusion

As often happens with quick-fix ideas, the proposed tariff on oil imports has been given a buildup that it does not deserve. It has been touted as a painless way of reducing the budget deficit, of improving the trade balance, and of enhancing energy independence. In reality, it would contribute relatively small reductions to the budget deficit, would reduce the trade deficit in a way that turns out to be counterproductive, and might actually reduce energy independence.

Moreover, it would also reduce real GNP, aggravate inflation, impose burdens on domestic oil users and on foreign oil producers, impose its economic burdens unevenly, interfere with market efficiencies from free trade, and add to administrative burdens. Thus, a tariff on oil imports is a proposal that ought to be firmly rejected.

Survey: *Interview Survey, 1982-83*, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2246, February 1986, pp. 11-13.

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