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TAXATION AND THE POLITICAL ECONOMY OF THE ENERGY "CRISIS"

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The issues of tax policy in the energy "crisis" make up a political problem of some subtlety. The battle of who shares the gains and losses (on domestic oil and natural gas) generated by the international market has continued for four and one half years, and still seems far from solution.¹ This article examines these issues as a problem of public choice, a matter of both politics and economics.

SOME PRELIMINARIES

As an economic problem of allocation of resources, the so-called energy crisis presents no overwhelming mystery, even though there are uncertain elements. Given the fact of a high price for imported oil, which is out of the United States' control, it follows that the efficient policy for the United States is to increase the output of domestic energy resources until their marginal cost is equal to the cost of equivalent oil imports, and to reduce oil consumption until its marginal utility rises to the cost of imports.² Since both the demand and supply of oil and oil substitutes is price inelastic in the short run, a period of continued high, but falling, imports is the economic solution.

A great deal, but not all, of an efficient solution for allocating energy resources could be achieved by simply letting markets work, which means that the market prices for energy resources would rise sharply in the U.S. The nub of the political "crisis" of energy policy is that most Americans would see this price rise as imposing "excessive" burdens on consumers and generating "excessive" windfalls for many energy producers and resource owners.

The public choice problem we focus on is how much to use

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1. As of this writing, May 1978, the House-Senate Conferees have not agreed on an energy bill. I do not expect their compromise to be the ultimate solution.

2. "Marginal Utility" is a convenient way to refer to consumer satisfaction from using oil. We could substitute "until consumers are indifferent at the margin between using more oil, using an oil substitute or not using so much energy." The only economic assumption involved is that as consumers use less oil, the marginal amount consumed becomes more valuable relative to the alternatives and at some point it will be efficient to import high cost foreign oil.

market mechanisms to bring about basic adjustment to the current world oil market. Posing the problem this way does not present a claim that the market for energy resources is efficient in all respects, but only that very specific market defects call for specific remedies. The following are market defects and their corresponding specific remedies:

- (1) The market price of imports does not make provisions for the special security costs involved in dependence on imports subject to boycott. This problem calls for a reserve inventory financed by an import tax and a still higher market price.
- (2) The market price of imports does not reflect that heavy imports affect our exchange rate and impose a further burden on Americans. Consequently, a still higher import price is necessary.
- (3) Most energy alternatives to oil involve environmental and health hazards that are not internalized in costs. Internalizing the externalities would require some pollution taxes and/or regulations which further increase the cost of alternative fuels.
- (4) An optimum amount of research and development is not likely to be undertaken in private markets because much of the benefits of successful research and development (R&D) is captured by others than the investor. Subsidized research is necessary.

These uncertain elements are serious, and much work needs to be done to quantify and solve the problems of imports, pollution, safety and research.

However important, these externality problems are separable from the central energy policy problem that this paper addresses—the extent to which we use the market system, by means of transferring real income, to deal with the basic tasks of (1) reducing U.S. consumption of oil and energy, and (2) increasing U.S. production of oil and oil substitutes. The problems of specific market defects can be handled whether we rely on market prices or government controls to deal with these basic tasks. Thus, we will largely put these specialized problems to the side and concentrate on the politics and economics of using a market solution to the problem of the increased price of oil imports.

THE POLICY RANGE

Since the increase in world oil prices of 1973-1974 the U.S. has been engaged in public and legislative debates about oil price control and various taxes on the production and use of oil. Since the 1950's, we have had a national debate on the regulation of the field price of natural gas. During the last few years there has been a flurry of

activity in some states over the imposition of increased severance taxes on coal and uranium. These issues have a common core: they are concerned with the transfer of income away from producers and owners of energy resources.

Three consecutive Presidents have proposed changing the price-control tax on oil to a more specific windfall tax. The difference is hardly crucial to producers. A specific tax deprives producers of actual revenue; price control deprives producers of potential revenue.³

The unique difference between price control and windfall taxes is that the effective "tax" under price control is immediately "spent" by the government as a consumer subsidy. Each consumer benefits from maximum price control in proportion to his or her consumption. Cadillac drivers benefit far more from gasoline price control than do bus riders. Windfall tax revenues, on the other hand, can be distributed to the public to compensate for the price increase on some average consumption basis. Alternatively, the proceeds could be spent by the government on the public's behalf. The obvious third alternative policy is to do nothing; let consumers face market prices, and make this income available to producers.⁴

Both the windfall tax and the price control form of tax will necessarily change producer incentives. Any output and reinvestment incentives that would have come from market prices are lost, and there may be new incentives inadvertently created to do things that reduce or avoid taxes. In addition, the price control, through its consumer subsidy feature, will change consumer incentives.

These incentive distortions must be regarded as bad. Typically, governments try to supplement policies of capturing producer surplus with a variety of regulations or other tax incentives to reinduce the behavior that is discouraged by taxing income away from producers and subsidizing consumption.⁵

Briefly, the policy alternatives are as follows:

- (1) free market prices (externality corrected), or
- (2) free market prices plus special producer taxes ("windfall" taxes)
 - (a) with specific distribution of the proceeds to the public, and/or

3. On the claim that the economic regulation issue is really about allocation of income, see Stigler, *The Theory of Economic Regulation*, BELL J. ECON. MANAGEMENT SCI. 2:3 (1971) and Pelzman, *Toward a More General Theory of Regulation*, J. L. ECON. 19:211 (1976).

4. Recall that externality problems are being left aside.

5. For a discussion of these problems of incentives in relation to energy policy, see articles by Wright, Mead, Brannon, Penner, Bryer and Drapkin, GROWTH AND CHANGE (Jan. 1979).

- (b) with other incentives or regulations to induce desired producer behavior, or,
- (3) price control with or without other incentives and regulations to induce desired producer and consumer behavior.

These policies of transferring producer surplus are not novel.

In the 1950's and 1960's, the present issue of basic energy policy existed in exactly the opposite form to that of 1973-1974. Two decades ago the world price of oil was low and national policy, which consisted of an import quota, a lower income tax on crude oil production via percentage depletion and the deduction of intangibles, and national support for state prorationing, was concerned with diverting a potential consumer surplus into higher income for producers. This policy could also be described as shifting a negative producer surplus to consumers.

The same income redistribution issues underline the argument of a military draft vs. an all volunteer armed force. It is irrelevant to pose the question, "Is a drafted army better than an all volunteer army?" The answer to that question is that if we pay enough for a volunteer army, it can attract the same soldiers that we would have drafted. To achieve this parity, of course, we would have to set the pay levels and the acceptance qualifications high, especially for new entrants.

The present political talk about going back to a draft is largely a response to earlier claims that a volunteer army would save money. The evidence is now clear that for an equal quality army, the short run cost of volunteers is much higher than the cost of draftees. Economically, the draft is a way of enforcing price control on military service.

The military draft issue is like the issue of oil price control. In one case we don't want the oil companies to exploit energy customers. In the other case we flabby, middle-aged Americans do not want young people to exploit the market for defense.

The assumption of this paper is that the issue of taxes in the energy program is not merely a matter of populist pique at rich oil companies but a manifestation of a very general social problem of a change in income distribution which is perceived as non-functional (i.e., undeserved). Some deeper understanding of the tax issues in energy policy can be achieved by looking at them in relation to this social (i.e., political) problem of income transfer.

THE SIMPLE OPPOSITION OF PRODUCERS AND CONSUMERS

At root, the energy policy options involve a political contest between producers and consumers. The outcome of such a contest is

simply indeterminate. Consumers far outnumber producers; therefore consumer interests have an initial edge in any democratic policy. On a per-capita basis, however, producers would have high gains from a market price policy without windfall taxes. Consequently, it is possible that the producer interest can prevail by means of logrolling.

Legislators representing producer interests will trade their votes on other issues that are not of much concern to their constituency. Legislators whose districts cover only energy consumers will observe that the gain to any consumer from price control will be small. Therefore, an anti-consumer vote on this issue might not be remembered when these legislators go back to their districts for re-election. Legislators who represent consumers might profit from trading away proconsumer votes on energy issues in order to get support on other topics that are of greater concern to their constituency.⁶

The foregoing argument does not predict that energy producers will prevail by means of logrolling, only that this development might overcome the numerical advantage of consumers. In energy policy the record is mixed. In the 1950's and 1960's the producer interests succeeded in obtaining import quotas and low taxes for oil and gas companies, but they were unable to prevent natural gas price regulation.

A commentary on the close balance between the legislative power of producer and consumer interests was offered by the income tax changes with regard to percentage depletion that was debated in the Congress in 1974 and 1975.⁷ The facts were that the drastic reduction in percentage depletion was not enacted until 1975, and favorable depletion was preserved for medium-sized oil and gas producers as well as for producers of other minerals. The inference is that it was only the massive size of the oil price increase that tipped the balance against the producer interests.

The device that brought about a change in the law in 1975 was a compromise that protected the interests of medium-sized independent drillers by limiting percentage depletion to about \$4,000,000 to \$6,000,000 of receipts.⁸ This provision has very little to do with

6. Another discussion of this producer-consumer conflict which suggests a number of circumstances in which consumers should win, see Buchanan and Tideman, *Gasoline Rationing and Market Pricing: Public Choice in Political Democracy*, Center to Study Public Choice, VPI Blacksburg, Virginia, (research paper, Jan. 1974).

7. Morrison, *Energy Tax Legislation; the Failure of the 93d Congress*, 12 HARV. J. LEGIS. 369 (1975).

8. Bennett and Heath, *Tax Reduction Act Severely Cuts Depletion Allowance, Tax Credit on Foreign Operations*, 42 J. TAX. 337. Also McDonald, *The Taxation System and Market Distortion* in R. KALTER & W. VOGLEY, *ENERGY SUPPLY AND GOVERNMENT POLICY* (1976).

output incentives since a nonintegrated producer whose receipts are already at this level would get no tax benefit on marginal output. In price terms, assuming a 48% tax rate and a net value of the percentage depletion deduction of 15%, this gross allowance is equivalent to a \$.75 price increase for lower tier oil and an increase of \$1.70 for upper tier oil. For a taxpayer in the 70 percent bracket who might be regarded as an influential constituent in an oil district, the real price equivalent of this percentage depletion allowance is about \$1.85 for lower tier and \$4.00 for upper tier.⁹

A similar pattern can be seen in the provision in the price control system for crude oil to treat stripper wells as producing upper tier (high priced) oil.¹⁰ From an efficiency standpoint, this must be overall counter-productive (compared to other ways of dealing with pumping costs). Under the price control arrangement a producer can substantially increase income from a low yield well by *reducing* output to bring it within the definition of stripper (10 bbls a day).¹¹ One reason price control on oil has survived is that a very numerous body of potential opponents have been bought off.

The benefits in both of these provisions go to groups that would make up part of the producer lobby. Those benefits serve to reduce the willingness of producers to provide the intense political support necessary to logroll their position over the far more numerous consumer interests.

A further complication in the producer-consumer politics of oil is that independent refiners and distributors have an interest in preserving price control. From the standpoint of the independents, increased crude oil prices would mean increased profits for integrated companies with the prospect that profits on crude would be available to improve their competitive position in refining and distribution.¹²

By 1978 it has been widely reported that the mechanics of price control, especially the complex arrangements for rolling-in prices of

9. We assume that the net benefit of 22% percentage depletion is 15% for lower tier oil, the reduction accounted for by the net income limitation, the cost depletion foregone and the minimum tax. See Brannon, *The Present Tax and Subsidy Provisions Relating to the Energy Industries* in *STUDIES IN ENERGY TAX POLICY* (G. Brannon, ed., 1974). See also McDonald *supra*, note 7. For upper tier oil, the net income limitation will be less restrictive so we put the value of percentage depletion at 18%.

10. Mead, *Oil, an Unregulated Industry*, in *ENERGY SUPPLY AND PUBLIC POLICY* 155 (1976).

11. Renshaw, *The Taxation of Crude Oil, Gasoline, Related Fuels and Commodities such as Motor Vehicles*, *GROWTH AND CHANGE* (Jan. 1979) (forthcoming).

12. See M. WOOLRICH, *ADMINISTRATION OF ENERGY SHORTAGE: NATURAL GAS AND PETROLEUM* (1976). There is a discussion of industry structure at 111-119 and a number of references to measures to protect independents in Chapter 6.

high and low cost resources for refiners and distributors, including imported gasoline, have produced a pump price of gasoline which is more nearly consistent with the world crude price than the U.S. crude price. These circumstances provide a further group of producers who are willing to support the consumer side of price control politics.

On the face of things, producers and consumers have different kinds of strength in the political conflict over income redistribution—intensity of interest versus sheer numbers. Because of the ability of redistribution schemes to isolate subgroups of producers, the outcome of this conflict must be regarded as indeterminate.

THE OUTPUT PENALTY

Our public choice approach to the treatment of energy incomes makes the basic assumption that decision makers respond to the self interested views expressed to them by their constituents. This assumption appears to leave little room for government policy to be directly affected by considerations of economic efficiency, a topic so prominent in economic analyses of the energy crisis.

A useful way to integrate economic efficiency questions within the political context of the present discussion is to refer to the output penalty. In any situation in which an industry enjoying a windfall price increase exhibits a high level of price elasticity of supply, an attempt to capture the windfall profits, either by price control or by special taxes, will reduce output substantially. This reduction is an output penalty. In this way, the tax creates an excess burden over and above the burden of income transferred from producers to consumers.

A significant excess burden is likely to fall on labor as increased unemployment. Where the labor group involved is organized, there will be opposition to the price control from a constituent of the federated labor union organization. This opposition will make it difficult for the central labor organization to support the consumer interest. In U.S. politics, support of organized labor is an important condition for success of consumer-oriented causes.

So far as the energy price issue is concerned, there is debate about the size of the output penalty. Ostensibly, the two tier price control system leaves a strong inducement to new well drilling, but impairs incentives with regard to old wells. Where there are multiple owners of property interests in one nonunified oil pool, existing owners would not likely risk loss of ultimate recovery by deferring output. In the aggregate, however, we can only say that there has been some

loss in output of old oil.¹³ The loss, however, is less than would appear from lowered production figures because oil left in the ground can be extracted later.¹⁴ A relevant observation is that the output penalty does not diminish existing jobs, and it would be unlikely to trigger much labor opposition to a tax on producer incomes.

Consumers can influence the political decision regarding output penalty. A shortage that was obviously induced by regulation would generate considerable demand for decontrol. There is no shortage of oil involved since an indefinite supply of foreign oil is available at some price. Consumers generally do not give as much notice to oil prices as they do to oil shortages since the energy resource component of energy service prices is quite small.

A detailed look at how the output penalty has entered the political debate in natural gas is revealing as to the oil situation. On some obvious grounds, 1978 is a most unusual year for repeal of natural gas price regulation. On the political side, the consumer-oriented interests were stronger than they had been in most Congresses since field price regulation began, and the Administration was in favor of continued price control. At the same time, massive increases in field prices had already occurred under price control; the Carter energy program was providing a controlled price for natural gas almost six times higher than the field price that prevailed in the U.S. in the 1960's! Why, under these circumstances, has it been so difficult politically for the Administration to get a continuation of price control on natural gas?

With only slight facetiousness, I suggest the explanation of the cold winter of 1977. Consumers have been made increasingly aware of the output penalty through a cumulation of effects from unsatisfied demand, restriction on new installations of gas home-heat, unemployment from interruptions of industrial service, and finally, the restriction on the availability of heating gas during an exceptionally cold winter.

It has taken almost 15 years for the output penalty involved in natural gas price regulation to assume sufficient importance to change the balance of forces in the politics of the producer-consumer

13. Rostow, Fisher and Woodson, *National Energy Policy, Sept. 1977: An Interim Overview*, in COUNCIL ON ENERGY RESOURCES, NATIONAL ENERGY POLICY: A CONTINUING ASSESSMENT (1978).

14. Renshaw, *supra*. A qualitative assessment which seems to express a greater concern with the output penalty is provided by Russell, ENERGY IN THE 1978 BUDGET SETTING NATIONAL PRIORITIES (J. Pechman, ed., 1978). See also the comment on Renshaw's paper by Geo. VonFurstenburg, GROWTH AND CHANGE (Jan. 1979) (forthcoming).

opposition. Understandably, the far more subtle penalty associated with price control on oil (which is merely excessive imports) is unlikely to have a significant impact on consumers.

POLITICAL AWARENESS

The next ingredient of a public choice analysis of the treatment of windfall profits on energy resources can be identified as the general public awareness of the issue, which really means the state of consumer awareness. It is useful to distinguish windfall profits from the output penalty that we just discussed. The separation of these two topics facilitates concentration on states of mind and general expectations as distinct from actual observed consequences. It has been recognized in the literature that one source of strength on the producer side of the conflict is the large per capita benefits to producers from policies of decontrol with no windfall taxes; producers can spend money to change the public awareness of the issue.¹⁵

What has happened in the matter of the profits underlying the energy crisis illustrates the extreme complexity of this issue awareness. While producer outlays on advertising will have significant effects at the margin, there appears to be a broad variety of almost accidental circumstances that change the state of awareness.

In the matter of natural gas price regulation, the succession of historical accidents is amazing. The regulation of field prices grew out of a Supreme Court interpretation of highly ambiguous statutory language.¹⁶ What was certain to be a Congressional override of the decision was frustrated by a fortuitous scandal involving allegations of an improper offer to one Senator.¹⁷ Since the public enjoys reading about scandals more than about economics, this raising of awareness led directly to the long reign of natural gas price control, in the face of powerful economic arguments against this price control (i.e., that the control reduced the royalty income, not a monopoly profit and created a shortage).

The significant publicity factor in the energy crisis of 1974 was the fortuitous oil embargo that directed public attention to the energy problem in a unique way due to long waiting lines at gasoline stations. Also of some importance was the fact that a price control mechanism left over from President Nixon's New Economic Policy of 1971 already existed. Of the two circumstances, the preexisting price

15. Peltzman, *supra*.

16. Phillips Petroleum Co. v. Wisconsin, 347 U.S. 672 (1954).

17. Breyer & MacAvoy, *The Natural Gas Shortage and the Regulation of Natural Gas Producers*, 86 HARV. L. REV. 941 (1973).

control was undoubtedly the less important. The announcement of a major international political event, an embargo against the U.S. at the beginning of the winter heating season, immediately set the media to talking about how the suddenly limited supplies would be allocated. The serious health implications of heating oil shortages, even on a local basis, would seem to make inevitable a public demand for a nonprice allocation system.

If further consciousness raising were necessary, it was provided by the identification of large U.S. oil companies with the governments in several key OPEC countries and the resulting persistence of conspiracy theories about the whole oil crisis. There is undoubtedly some general good will in the American public for a market-price argument. The relevance of adopting a domestically free price as a response to a foreign cartel beyond our control is a somewhat subtle point, however. With a widespread suspicion that our oil companies were somehow involved in the foreign cartel, the chances of dislodging a price control system already in place were very slight.

The awareness issue was very clear in 1975. President Ford's administration, whose sympathies might be presumed to rest on the side of market prices and production incentives, proposed merely the substitution of an explicit windfall tax with distribution of the proceeds in lieu of a price-control tax. The proposal was defeated by a populist demand for crude price control.¹⁸

THE ADMINISTRATIVE COSTS OF REGULATION

In assessing the potential gains to consumers from either a price control or a tax approach to dealing with a producer surplus, the cost of enforcing a redistribution system is potentially an offset to those consumer gains. This argument is similar to the point about economic efficiency in that we would not expect to find a strong constituency for efficiency in government expenditures as such. The public choice significance of this feature will depend on its absolute size, as well as precisely how the administrative costs are reflected in the policy decision.

In the present case, for a number of reasons, there were in existence a number of oil and oil products reporting systems plus a reasonably small number of refineries. The entire regulatory system has been handled at an administrative cost of under \$0.5 billion on the government side.¹⁹ Even if these costs were subtracted from the

18. For review of this legislative battle, see Brannon, *Prices and Incomes: The Dilemma of Energy Policy*, 13 HARV. J. LEGIS. 445 (1976).

19. Russell, *supra* at 330, referring to the results of an inter-agency study.

proceeds of a producer tax, this would make a very small dent in the size of excess profits.

A POLITICAL ANALYSIS OF THE CARTER ENERGY-TAX PROGRAM FOR OIL

The central feature of the Carter energy tax program as it relates to oil is the crude oil equalization tax (COET). In political terms a proposal more or less like this one should be regarded as inevitable. Oil price control was extended by the 94th Congress (1975) with its principal support from President Carter's party, and that party was in stronger control of the 95th Congress than it was of the 94th.

Impressively, the opposition to COET in the Ways and Means Committee was a combination of the 12 Republicans voting plus the Democrats from the oil producing states of Texas (2), Louisiana, and Oklahoma. The measure carried by 21-16.²⁰ Clearly the opposition was not a vote for price control but for ultimate decontrol with gain accruing to energy producers and owners of energy resources. This inference is strengthened by the appearance of exactly the same line-up (with yeas and nays reversed) on an amendment to allow oil companies to keep 20 percent of the COET revenues for investment in finding more oil.²¹

The President had brought around the non-oil-state Committee Democrats (many of whom had been price control supporters in 1975) to the position of allowing consumers to face the import price of oil with regard to their marginal decisions.²² The President had certainly moved his constituency to a more economically defensible position. It would have been quite unrealistic to have expected a Democratic President to completely abandon his own constituency to advocate no price control and no windfall tax.

The COET was keyed to the import price of oil which meant that it involved two important economic problems. The import externality problems noted in our introduction remained, and there was some output penalty.

Although we have argued that the output penalty was not potent politically, it will be useful to look a bit more closely at COET to see how it deals with output issues. The tax would move the U.S. crude oil price to the world price level by 1980 with the reservation that the U.S. price might not be permitted to rise fully to the world price

20. TAX NOTES, June 20, 1977, at 3.

21. *Id.*

22. An exception to this proposition is noted *infra* at note 24.

if that price after 1977 rises by much more than the rate of U.S. price inflation, now an unlikely possibility.

COET would recapture "windfalls" by applying different tax rates to different oil types. Different types of oil are defined as follows:

- (1) old oil, as defined by the pre-1977 price regulations, broadly oil produced from a field not in excess of the production in 1973;
- (2) new oil, which does not fall in any of the other categories;
- (3) new-new oil—oil discovered from wells drilled after April 20, 1977 (at a minimum distance from old wells on shore or from old leases off-shore) plus oil obtained from existing wells by tertiary recovery methods;
- (4) stripper oil—from wells with output below 10 bbl/day;
- (5) Alaskan oil and oil from the Naval Petroleum Reserves.

COET would be defined as the market price less an allowed factor price. The factor prices for old oil and new oil are the 1977 regulated prices, \$5.28/bbl and \$11.56/bbl respectively, increased annually for general inflation. The factor price for new-new and stripper oil would be the 1977 world market price, \$14.25, also increased for inflation. Table 1 provides some calculations of the COET for 1980 assuming that the world market price for oil rises at 5 percent or 7 percent a year while the U.S. prices increase about 5 percent a year.

Table 1 illustrates the division between producers and consumers of the increased market cost of raising the crude oil prices. We have simply assumed a plausible level of U.S. outputs for 1980; our intention is not to predict a particular output response, but to look at the financial implications of a plausible output.

An OPEC price, rising at the U.S. inflation rate, should be about \$16.50 in 1980, delivered East Coast, U.S. (1980 case #1). If U.S. production is 3.56 billion bbls, this will create a market cost of \$58.8 billion in 1980. Under price controls in 1977, Americans paid \$25.7 billion for crude produced in the U.S. To get a fair picture of the cost to U.S. consumers of the higher prices, we include in the 1977 cost the value of an amount of oil that was imported in 1977 but will be produced in the U.S. in 1980, the quantity X in Table 1. (U.S. consumers will pay for other imports in 1977 and 1980 but these are irrelevant to the immediate focus of U.S. product.)

For an amount of crude oil for which Americans are now paying \$34.5 billion (the \$25.7 billion noted *supra* plus \$8.8 billion of imports) the cost in 1980 at the market price will be about \$60 billion, a few billion more or less depending on the OPEC price. If we assume 5 percent inflation, the U.S. consumers should expect the current cost to rise to \$40 billion by 1980 with no increase in real

TABLE I
U.S. PRODUCTION OF CRUDE OIL, PRICES, MARKET COST AND
PROPOSED CRUDE OIL EQUALIZATION TAX, 1977 AND 1980

Oil Type	1977				1980 (1)				1980 (2)				
	Output bbl/y	Market Price \$	Cost \$bil	Output bbl/y	Market Price \$	Cost \$bil	Factor Price \$	Per bbl \$	Total Rev. \$ bil	Market Price \$	Cost \$	Per bbl \$	Total Rev. \$ bil
Old oil	1.34	5.20	7.0	0.91	16.50	15.0	6.40	10.10	9.2	17.50	15.9	11.10	10.1
New oil	1.10	11.00	12.1	1.20	16.50	19.8	14.20	2.30	2.8	17.50	21.0	3.30	4.0
New-new oil	0.07	11.20	0.8	0.40	16.50	6.6	16.20	0.30	0.1	17.50	7.0	1.30	0.5
Stripper	0.36	13.50	4.9	0.40	16.50	6.6	16.20	0.30	0.1	17.50	7.0	1.30	0.5
Alaskan	0.07	13.50	0.9	0.58	16.50	9.6	16.50	-	-	17.50	10.2	-	-
NPR	-	-	-	0.07	16.50	1.2	16.50	-	-	17.50	1.2	-	-
X	0.62	14.25	8.8	-	-	-	-	-	-	-	-	-	-
	3.56		34.5	3.56		58.8			12.2		62.3		15.1

burden. The net increase in burden on U.S. consumers is then \$19-22 billion. Under the proposed windfall tax, the federal government captures \$12-15 billion, leaving \$7 billion to producers, along with approximately \$9 billion that U.S. producers set for displacing some imports. This is a gross increase in U.S. producer real income of \$16 billion. One obvious qualification to the producer income is that the 1980 production includes an increase of 0.51 bbl of Alaskan production, which entails special costs of almost \$4 billion (transportation at \$6/bbl and Alaskan Tax of about \$1.25/bbl). These special costs reduce the net increase in producer income to \$11 billion.

To relate this to output changes we must consider the normal decline rate in old wells. Putting aside the new-new and Alaskan oil in 1977, the remaining production is 2.7 billion bbls.; in three years this should decline normally by about 0.6 billion bbls. To produce a net output gain of 0.6 billion bbls, the total new production must be around 1.2 billion bbls. As proposed, the COET drives a hard bargain with producers. Even if producers achieve an appreciable output increase, the gain to the companies per barrel of increased output is only about \$10.

This much windfall tax would appear to be "buying" considerable output penalty. Some recognition of this situation was shown by newspaper reports of proposed regulation changes wherein oil producers would be offered substantial increased revenues.²³ The techniques of driving the Congress to a strong anti-producer position that is to be modified later by administrative action seems to create an inept political operation. Basically, it seems clear that the details of COET can be modified to achieve more producer income.

However these output aspects of COET might be handled, the externality problems related to high imports remain. It is not inconceivable that the Carter administration could have advanced a price solution—an import tax plus correspondingly higher taxes on U.S. producers and higher distributions to consumers. Considering the price control forces to be dealt with, it is not surprising that this avenue was not pursued.

Since the externality problems remained, the questions were how non-price adjustments would be allocated between classes of consumers, and whether the adjustments would be brought about by regulation, tax penalties, or tax incentives. (Although there was no constituency for further restrictions on oil consumption, we think an administration must anticipate that continuation of economically

23. Washington Post, April 15, 1978, at 1.

unsound positions in this case, increasing oil imports, will generate a future political liability.)

With regard to the first part of this remaining problem of allocating more energy reductions, we can infer from the administration proposals and from Congressional reaction, a priority scale which was approximately as follows, starting with the most favored group:

- (1) users of home heating (non-electric)
- (2) users of petro-chemicals
- (3) users of residential and commercial heating (non-electric)
- (4) auto drivers and agricultural users
- (5) public utilities
- (6) industrial users (of oil) not convertible to coal
- (7) industrial users, convertible to coal.

The Ways and Means Committee has consistently worried about imposing high oil costs on home heating bills. This reluctance was reflected in the amendment to COET to provide that certain home heaters could obtain COET refunds in proportion to their purchases, which is an expensive way of retaining price control. The root of this amendment was the concern that coal heating of homes is no longer feasible, which with a natural gas shortage leaves home heaters with few alternatives (lower temperatures or more insulation). This problem was seen as peculiar to northern states. The regional nature of the problem adds to the voter recognition of the issue. The vote alignment supporting this rebate was substantially the same as that supporting COET, except two Republicans, from Northern New York and Pennsylvania, shifted to vote for rebate and one southern Democrat shifted to vote against it.²⁴

After a decision to leave home heating systems facing too low a price of oil (and gas) it was predictable that consumers would do too little insulation, and too little investment in alternatives. It was, therefore, obvious to induce economic behavior by introducing subsidies for home insulation and solar heat. Arguably solar heating would be advanced more readily by more research outlays rather than by consumer subsidies for buying the present high-priced systems. The subsidy for insulation is limited in amount per taxpayer and in the form of a credit; it is probably not appreciably worse than any other subsidy that could have been proposed.

Users of petro-chemicals and operators of multi-residential and commercial heating systems were left alone with the price decontrol.

24. TAX NOTES, July 4, 1977, at 3.

Automobile drivers were handled gingerly. The political wisdom was that a straight-out increase in the automobile tax was anathematic after the crushing defeat of the Ways and Means Committee's gasoline tax proposal in 1975.²⁵

The Administration opened up an ingenious approach toward using price mechanisms to reduce gasoline consumption. Studies of price elasticity of demand for gasoline reveal a low short term elasticity, about 0.2, and a long term elasticity that is considerably higher.²⁶ The obvious meaning of these figures is that higher gasoline prices have little effect on driving habits, assuming consumers drive the autos they already own. Given time, the rational response to higher gasoline prices is to put more weight on gasoline economy in choosing a new car. (The obvious reason why European cars are so much smaller than American cars is the historically high levels of gasoline taxes in Europe.)²⁷

This situation points to an obvious political strategy—taxation of new car owners. Such discrimination would be impossible to administer at the gasoline pump, but it could be accomplished by collecting in advance a gasoline tax on new car purchases (at a discount for pre-payment) on the expected gasoline consumption over the life of the car. A car driven 100,000 miles in ten years with a average of 20 miles per gallon will consume 5,000 gallons. At a 9 percent discount rate, the value of a 1 cent/gallon tax will be, at the time of purchase, \$33. Similar calculations for a car of 15 miles per gallon yields a purchase tax of \$50 and for 30 miles per gallon, \$22.

The roughly 20 gallons of gasoline refined out of a barrel of crude accounts for about 55 percent of the value of product. Consequently, gasoline buyers could be faced with the equivalent of a \$1/bbl higher price for crude by a tax of about 3 cents/gal. Assuming we wanted to induce behavior consistent with a real cost of imports \$3 above the nominal import price, the appropriate scale of the new car tax would be as follows:

<i>Gasoline consumption</i>	<i>Tax</i>
12 miles/gal	\$500
15 miles/gal	400
20 miles/gal	300
30 miles/gal	200
35 miles/gal	173

25. See Brannon, Price and Incomes, *supra* note 18.

26. U.S. INTERNATIONAL TRADE COMMISSION, THE FUEL EFFICIENCY INCENTIVE TAX PROPOSAL: ITS IMPACT UPON THE FUTURE OF U.S. PASSENGER AUTOMOBILE INDUSTRY, U.S. SENATE, COMMITTEE ON FINANCE (July 1977).

27. N. GUYOL, ENERGY IN THE PERSPECTIVE OF GEOGRAPHY 99 (1971).

This scale represents the current value of an extra 9 cents/gal gasoline tax.

This strategy is inherently attractive in that it avoids a relatively pointless burden on drivers of existing cars. In this way, existing car owners are like those who heat homes; they face no viable options, and see the income transfer associated with high prices as both useless and burdensome. The observation that such a tax burden is not politic as well reflects a fundamental rationality in the political process.

Unfortunately, the apparent "way around" the bad politics of a gasoline tax carries its own problems; a significant penalty on new car sales. Assuming an average price of a new car at \$5,000, an average tax of \$300, and a price elasticity of demand around 1.2, car purchases would decline about 7 percent.

Pursuing the will-of-the-wisp of a weightless burden, the administration came up with a means to impose a differential burden on gasoline consumption of new cars by making the tax high on low gasoline mileage cars, zero on average cars and negative (i.e., a tax credit) on gasoline economy cars. This is a way of refunding the car tax to customers, while continuing a price differential for gasoline economy and not significantly reducing car purchases. (From an energy policy standpoint, reducing new car purchases would have been sensible but impolitic.)

Fascinated with its discovery of weightless burdens, the Administration sought to push the technique very hard. The significance of these proposals can be seen by comparing a zero revenue variant of the 9 cent gasoline tax proposal with the President's proposal:

<i>Gasoline Consumption</i>	<i>9 cent gasoline tax prepaid adj to zero revenue</i>	<i>Carter Proposal 1980</i>
12 mil/gal	200	666
15 mil/gal	100	333
20 mil/gal	0	0
30 mil/gal	(100)	(333)
35 mil/gal	(133)	(428)

This severe economic burden on varying gasoline mileage makes little economic sense. It was in fact presented by the President in terms of a lot of moralistic talk about "gas guzzlers." A station wagon carrying 5 people may be much more fuel efficient than a small car carrying one person. A straight out "real cost of gasoline" basis for the auto tax could have avoided the anti-family aspect of a punitive tax on station wagons. Another political defect of the Administration's plan was that foreign cars would be over-represented in

the refund category. A study called for by the Senate Finance Committee produced the estimate that the plan would reduce 1985 sales of U.S. and Canadian produced cars by 330,000 and increase imports by 300,000.²⁸

Ultimately, the fate of the fuel economy incentive tax was to be reduced to a fairly trivial device to enforce some crude mileage regulation imposed on car producers. When the problem was seen by the public as amenable to a regulatory solution, price burdens appeared unproductive.

The remaining three classes of fuel users, all in large industry, elicited only modest sympathy. Presumably the industries involved would pass most of higher fuel prices on to customers. These industries would be left with the market price of crude, and progressively between 1978 and 1983 there would be imposed an extra excise tax from \$1.50 to \$3.00/bbl on crude oil (and a similar tax on natural gas). The details are unimportant so we comment only on some broad features of industrial user treatment.

Public utilities were subjected to the lowest tax, presumably because of the continuing protest about electric rates. These are sensitive because rates are set by politically appointed public utility commissions. In industrial situations in which conversion to coal is not feasible, the extra tax is also low, in line with the limited option principle. Finally, large classes of industrial users, small and medium sized firms, and the inevitable farmers were spared the industrial user tax.

The other features of the industrial user tax were two tax rebates. Firms paying the tax were to be allowed a full rebate for installation of oil substitute equipment while all firms were to be allowed an extra investment credit for installation of any of a broad range of equipment to utilize new energy sources or to produce more economical use of energy.

Neither rebate feature was brilliantly designed. The refund of excise tax involves a 100 percent offset of cost and would induce much outright waste of useful capital. The investment credit fails on the ground that the amount of the credit is a function of the amount of capital cost, not of the relative energy efficiency. The problem is basically one of disorganized political decision-making. The Administration could have designed a more efficient subsidy for energy efficient new investment, but the constraint was that it had to be worked into the same tax package as the industrial user excise tax,

28. U.S. INTERNATIONAL TRADE COMMISSION, *supra* note 26.

and the subsidy had to be designed not on energy policy grounds but on grounds of workability within the tax system.

CONCLUSION

The energy "crisis" is a political one. It mostly arises from the combination of historical accidents that led to a national response of price control. In some political circumstances, political leadership or industry influence may have led to a more market oriented response. In the politics of the 1970's in the U.S. a market solution was not possible; price control was demanded. The problem for successive administrations has been to find popular ways to modify the price/profit control system so as to come closer to market results.