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ECONOMIC CONSEQUENCES OF THE  
ENERGY POLICY AND CONSERVATION ACT

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Abstract

The Energy Policy and Conservation Act was signed into law during December 1976 after a year of debate between the Ford Administration and Congress over energy policy. The Act established a compromise 40 month phased decontrol program for domestic crude oil prices. This paper employs macroeconometric simulation techniques to assess the impacts that the decontrol pricing policy will have on energy sector demand and supply conditions and on the general economy through 1978.

I. INTRODUCTION

In his January 1975 State of the Union message to Congress, President Ford outlined an energy program which would "begin to restore our country's surplus capacity in total energy."\* As part of this program he asked that within 90 days Congress decontrol the price of domestic crude oil, impose a windfall profits tax on oil producers, deregulate natural gas, and enact excise taxes and import fees on crude oil and refined petroleum product imports totaling \$2 per barrel.

A week after his State of the Union address, Mr. Ford imposed supplementary oil import fees on imports of crude oil and refined petroleum products as the first step in implementing his program. These fees were to become effective in three stages: (1) \$1 per barrel starting on February 1, (2) \$2 per barrel starting

on March 1, and (3) \$3 per barrel starting on April 1. In late February, Congress passed a bill to suspend for 90 days the President's authority to impose oil import fees. Mr. Ford vetoed this legislation, but postponed the supplementary fees scheduled to go into effect March 1 and April 1 until May 1 and June 1, respectively, to allow 60 days for Congressional deliberation as Congress had requested. On June 1 Mr. Ford put the \$2 supplementary fees into effect, but never instituted the \$3 fees.

Although he had initially proposed immediate decontrol of domestic crude oil prices, President Ford amended this stance three times during the Spring and Summer. In April he suggested decontrol be phased in over a two year period; in mid-July he stretched the decontrol period to 30 months; finally, at the end of July he

\*See [6, p. 48].

lengthened the decontrol period to 39 months. Congress rejected each of these modified decontrol proposals on the grounds that they would raise energy prices too rapidly, thereby accelerating inflation and exacerbating unemployment. The Democratic majority in Congress called for a program combining a five year period of phased decontrol with mandatory conservation measures and other regulations in order to minimize the impacts of higher energy prices on consumers. Mr. Ford rejected this approach.

Existing price controls on domestic crude oil temporarily lapsed at the end of August when the Emergency Petroleum Allocation Act (EPAA) expired. Congress passed an extension of the EPAA, but the President vetoed it to keep Congress under pressure to act on decontrol. In early September, after the Senate failed in an attempt to override the EPAA veto, the President and Congress agreed to work toward a decontrol compromise, and the EPAA was extended for 60 days.

During September and October members of the Ford Administration met with members of Congress on a variety of House-Senate conference bills after the two Houses of Congress passed separate legislation. In November, after the EPAA had again been temporarily extended, members of the Administration and the House-Senate conferees reached agreement on a 40 month phased decontrol package. This compromise plan was sent to Mr. Ford on December 18 and signed into law by him as the Energy Policy and Conservation Act (EPCA) on December 22.

The energy program imbedded in the EPCA departed significantly from that originally proposed by the President nearly a year earlier. Decontrol of domestic crude oil prices was to occur gradually

after establishing an initial average price of \$7.66 per barrel. Neither a windfall profits tax nor natural gas deregulation was enacted. Not only did the EPCA contain no provision for excise taxes and fees on imports of crude oil and refined petroleum products, but as part of the compromise with Congress, Mr. Ford removed the \$2 per barrel supplementary fees imposed in June 1975.

In this paper we examine the economic consequences of the EPCA. Our purpose is to assess both the extent to which it meets the stated objective of restoring energy self-sufficiency and the impacts it can be expected to have on the general economy. Section II summarizes the main provisions of the EPCA. Section III describes the methodology we have used to analyze the EPCA. Section IV reports the results of our analysis. Section V presents our conclusions.

## II. PROVISIONS OF THE EPCA

The EPCA signed into law by President Ford on December 22, 1975, provides for phased decontrol of domestic crude oil over a 40 month period beginning February 1, 1976. It consists of five major sections dealing with a variety of matters in addition to decontrol. Portions of the EPCA are superseded by the Energy Conservation and Production Act (ECPA), signed into law in August 1976.

Title I of the EPCA addresses the availability and development of domestic energy supplies. It grants the Administrator of the Federal Energy Administration (FEA) authority to guarantee loans for the development of new underground coal mines subject to a stringent set of eligibility requirements. It also directs the Administrator to establish and maintain a strategic petroleum reserve designed to

lessen the impacts of severe energy supply interruptions. Other provisions prohibit joint bidding by major oil companies for the rights to develop offshore oil fields and establish allocation and export restrictions on equipment and materials used in developing and producing domestic crude oil and natural gas.

Title II of the EPCA provides the President with specific standby authorities to be implemented in the event of a severe energy supply interruption or comply with obligations under international energy agreements. Authority is granted to impose rationing and implement one or more contingency plans that would restrict energy consumption. Such contingency plans are required to have the prior approval of Congress.

Title III of the EPCA sets forth energy efficiency standards. It establishes fuel economy standards for certain classes of motor vehicles and provides heavy penalties for noncompliance with these standards. Title III also mandates targets for improving the energy efficiency of major appliances and certain other consumer products.

Title IV of the EPCA establishes a domestic oil pricing policy to be implemented in three stages. First stage implementation establishes a maximum weighted average first sale price of \$7.66 per barrel on domestic crude oil effective February 1, 1976. This initial ceiling price is approximately \$.87 per barrel lower than the average price of domestic crude oil which prevailed in January 1976. Second stage implementation provides the President with authority to raise the ceiling price in subsequent months to offset the effects of inflation and provide an

incentive for enhancing domestic crude oil production. Adjustment as a production incentive is limited to a 3 percent annual rate; adjustment to offset inflation and as a production incentive are limited to a 10 percent annual rate. Third stage implementation allows the President to submit to Congress amendments that would relax the limits on the rate at which the ceiling price may be raised. The need for the proposed amendments to provide an adequate incentive for sustaining or improving domestic crude oil production must be documented in any such submission.

Title V of the EPCA grants broad authorities to Federal agencies to verify information reported by the energy industry. These authorities include the power to subpoena and examine books, records, and documents kept by companies engaged in the production, transportation, processing, or distribution of energy resources. The Securities and Exchange Commission is directed to prescribe accounting procedures to be used by companies producing crude oil or natural gas so as to facilitate the compilation of a reliable energy data base.

The EPCA amends the EPCA title IV pricing policy by partially decontrolling stripper and tertiary oil prices. The EPCA allows stripper and incremental tertiary oil to sell at the world price of crude oil, with stripper oil treated as if it sells at the price of "new" oil for EPCA title IV purposes.

### III. METHODOLOGY

In cooperation with others, we have performed four separate analyses to determine the economic effects of the EPCA.\* The first analysis, initiated prior to passage

\* Three of these analyses are reported on in [4], [7], [8]. The fourth analysis is available only in the form of internal FEA memoranda.

of the EPCA, examines the economic implications of the proposed EPCA pricing provisions relative to a continuation of the status quo. The second and third analyses, undertaken after the adoption of the EPCA, analyze the economic impacts of the EPCA provisions at various stages of implementation. The final analysis, undertaken prior to passage of the EPCA, analyzes the effects of amendments to the EPCA title IV pricing policy contained in the EPCA, also known as the FEA Extension Act.

Each of the four analyses relies upon a common methodology using two separate models to measure the impacts of alternative energy scenarios. Energy sector impacts are estimated with a short-term petroleum forecasting system (STPFS) developed at FEA. Outputs of the STPFS are then used as inputs in simulations of the Data Resources, Inc. (DRI) quarterly model of the U.S. economy to determine the corresponding impacts on the general economy.

The STPFS operates in a stepwise manner. First, forecasts for domestic production of crude oil and natural gas liquids are generated. Then, price estimates are derived for various refined petroleum products based on these production estimates and assumptions concerning the world price of crude oil, import duties, and domestic price regulations. Next, these price estimates are used in an econometric demand model with macroeconomic forecast data to determine the domestic demand for eight different refined petroleum products. Finally, imports of crude oil and refined petroleum products

are estimated as the residuals between domestic demands, domestic production, and changes in domestic stocks.\*

Once results have been obtained from the STPFS, they are used to modify the assumptions underlying a standard DRI model simulation and create a new macroeconomic alternative simulation for each energy scenario by resolving the DRI model. Variables in the DRI model for the wholesale price index for fuels and related products and power, the 1967 constant dollar values of imported crude petroleum and refined petroleum products, and the average unit value index for imported crude petroleum are changed to levels consistent with STPFS estimates. In addition, receipts from indirect business taxes are adjusted to reflect fees on imports of crude oil.\*\*

#### IV. EMPIRICAL RESULTS

Table 1 summarizes the major assumptions underlying six scenarios we employed with the methodology described in section III to assess the consequences of the EPCA for energy sector demand and supply and for the general economy. The scenarios "Pre-EPCA I" and "Pre-EPCA II" reflect the state of the world before the EPCA became effective. The \$2 per barrel supplementary fees on imports of crude oil and refined petroleum products are assumed to continue indefinitely in the former scenario and are eliminated January 1, 1976, in the latter scenario. The scenarios "EPCA Stage I," "EPCA Stage II," and "EPCA Stage III" reflect the states of the world after successive

\*For a complete description of the STPFS and the solution procedure for it, see [1].

\*\*More detailed descriptions of the DRI model and our energy scenario simulation procedure are available in [2], [3], and [5].

Table 1 - Major Assumptions for EPCA Scenarios

Scenario	Constraints on Domestic Crude Oil Prices	Supplementary Fees on Imports of Crude Oil and Refined Petroleum Products	World Price of Crude Oil
Pre-EPCA I	"Old" oil controlled at \$5.25/bbl "New" oil uncontrolled; remains constant in real terms	\$2.00/barrel	Constant in real terms
Pre-EPCA II	Same as above	None	Same as above
EPCA Stage I	Average price controlled at \$7.66/bbl	None	Same as above
EPCA Stage II	Average price set at \$7.66/bbl February 1, 1976, then increases 10% annually	None	Same as above
EPCA Stage III	Average price set at \$7.66/bbl February 1, 1976, then increases 14% annually	None	Same as above
S&T Decontrol	Average price set at \$7.66/bbl February 1, 1976, then increases 10% annually; stripper and tertiary oil partially decontrolled	None	Same as above

stages of implementation of the EPCA title IV pricing policy. The scenario "S&T Decontrol" corresponds to the state of the world implied by partial decontrol of stripper and tertiary oil under the ECPA.

Table 2 reports our estimated energy sector impacts on domestic crude oil prices and imports of crude oil and refined petroleum products through 1978 for other scenarios relative to the "EPCA Stage II" scenario. Similarly, Table 3 reports our estimated macroeconomic impacts on the Consumer Price Index (CPI), real GNP, and the unemployment rate through 1978 for other scenarios relative to the "EPCA Stage II" scenario. Owing to the fact that modifications to the STPFS were made between the times that the four analyses referred to in section III were conducted, some of the results presented in those analyses are not directly comparable. Fortunately, the "EPCA Stage II" scenario was considered in all four analyses and serves as a common reference point among them. Thus, the comparability problem can be minimized by using the "EPCA Stage II" scenario as a base case and analyzing other scenarios relative to it. This is the procedure we have followed in Tables 2 and 3.\*

Our results show that domestic crude oil prices are lower after first stage EPCA implementation than without the EPCA. However, subsequent stages of EPCA implementation gradually offset the effects of the initial rollback in domestic crude oil prices and leave them at levels comparable to those of the pre-EPCA situation with supplementary fees removed. Eliminating the fees accounts for about one-half of the impact on domestic crude oil prices associated with the initial rollback of domestic crude oil prices in the "EPCA Stage I" scenario.

There are only small differences in imports of crude oil and refined petroleum products among scenarios.\*\* The maximum variation between any two scenarios in the share of domestic consumption of refined petroleum products met by imports of crude oil and refined petroleum products is only three percentage points. This lack of response in imports to changes in energy policy and domestic crude oil prices can be attributed to the inelasticity of energy demand and the long lead times required to significantly increase domestic energy supply.

The macroeconomic impacts of the EPCA reflect primarily the effects that changes in domestic energy prices have on aggregate price levels. The reduction in energy

\*The 40 month EPCA decontrol program extends into 1979, but forecast horizon limitations of the STPFS did not allow us to extend simulations past 1977 in some cases and 1978 in others. In addition to minimizing the comparability problem, reporting differences among scenarios rather than levels has the advantage of de-emphasizing the particular assumptions for exogenous variables underlying our simulations.

\*\*Domestic crude oil production was assumed to be the same in the EPCA Stage I" and "EPCA Stage III" scenarios as in the "EPCA Stage II" scenario. Thus, differences between imports of crude oil and refined petroleum products in these scenarios only reflect changes in domestic energy demand. Domestic crude oil production does vary in other scenarios relative to the "EPCA Stage II" scenario.

Table 2. Energy Sector Impacts  
Relative to the "EPCA Stage II" Scenario

a. Differences in the Average Price of Domestic Crude Oil (\$/bbl)

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Pre-EPCA I (Fees)	1.54	1.62	NA
Pre-EPCA II (No Fees)	.79	.68	NA
EPCA Stage I	-.29	-1.09	-1.56
EPCA Stage III	.11	.45	1.08
S&T Decontrol	.22	.92	.83

b. Differences in Imports of Crude Oil and Refined Petroleum Products (MMB/day)

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Pre-EPCA I (Fees)	-.32	-.43	NA
Pre-EPCA II	-.23	-.31	NA
EPCA Stage I	.01	.07	.13
EPCA Stage III	-.01	-.02	-.07
S&T Decontrol	-.01	-.12	-.28

c. Percentage Point Differences in Imports of Crude Oil and Refined Petroleum Products as a Percent of Domestic Consumption of Refined Petroleum Products

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Pre-EPCA I (Fees)	-1.0	-2.0	NA
Pre-EPCA II (No Fees)	-1.0	-2.0	NA
EPCA Stage I	0.0	1.0	0.0
EPCA Stage III	0.0	0.0	-1.0
S&T Decontrol	0.0	-1.0	-2.0



Table 3. Macroeconomic Impacts Relative to the "EPCA Stage II" Scenario

a. Percent Differences in the Consumer Price Index

	76:1	76:2	76:3	76:4	77:1	77:2	77:3	77:4	78:1	78:2	78:3	78:4
Pre-EPCA I (Fees)	0.3	0.4	0.5	0.7	0.9	1.0	1.1	1.1	NA	NA	NA	NA
Pre-EPCA II (No Fees)	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	NA	NA	NA	NA
EPCA Stage I	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.4	-0.5	-0.6	-0.7
EPCA Stage III	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
S&T Decontrol	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3

b. Differences in Real GNP in Billions of 1958 Dollars (Percent Differences in Parentheses)

Pre-EPCA I (Fees)	-1.6	-2.5	-3.8	-5.7	-8.1	-10.2	-12.5	-14.4	NA	NA	NA	NA
Pre-EPCA II (No Fees)	(-0.20)	(-0.30)	(-0.45)	(-0.66)	(-0.92)	(-1.16)	(-1.40)	(-1.60)	NA	NA	NA	NA
EPCA Stage I	0.6	-0.3	-0.6	-1.3	-2.1	-2.9	-3.7	-4.3	NA	NA	NA	NA
EPCA Stage III	(0.07)	(-0.04)	(-0.07)	(-0.15)	(-0.24)	(-0.33)	(-0.41)	(-0.47)	4.6	6.1	7.5	8.9
S&T Decontrol	(0.00)	(0.01)	(0.02)	(0.03)	(0.04)	(0.06)	(0.07)	(0.08)	(0.10)	(0.11)	(0.12)	(0.13)
	0.0	0.0	-0.1	-0.2	-0.4	-0.6	-0.9	-1.4	-1.8	-2.3	-2.8	-3.2
	(0.00)	(0.00)	(-0.01)	(-0.02)	(-0.04)	(-0.07)	(-0.10)	(-0.15)	(-0.20)	(-0.26)	(-0.31)	(-0.35)
	0.0	0.0	0.0	-0.1	-0.1	-0.4	-1.2	-2.2	-2.5	-3.2	-3.1	-2.8
	(0.00)	(0.00)	(0.00)	(-0.01)	(-0.01)	(-0.05)	(-0.13)	(-0.25)	(-0.28)	(-0.35)	(-0.34)	(-0.31)

c. Percentage Point Differences in the Unemployment Rate

Pre-EPCA I (Fees)	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.5	NA	NA	NA	NA
Pre-EPCA II (No Fees)	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	NA	NA	NA	NA
EPCA Stage I	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3
EPCA Stage III	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
S&T Decontrol	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

prices after first stage EPCA implementation relative to the pre-EPCA scenarios leads to a corresponding reduction in consumer prices as measured by the CPI. In turn, the lower consumer prices stimulate aggregate demand, as measured by real GNP, and reduce the unemployment rate relative to the pre-EPCA scenarios. Subsequent stages of EPCA implementation cause consumer prices to rise over time as phased decontrol occurs, and this rise gradually offsets most of the impacts first stage implementation has on real GNP and unemployment relative to the pre-EPCA situation.

#### V. CONCLUSIONS

Our analysis indicates that the 40 month phased decontrol program set forth in title IV of the EPCA and modified by the ECPA will have small effects on either U.S. energy independence or the general economy through 1978.

On the one hand, these results are disappointing, since they provide no basis for crediting the 40 month decontrol program with increasing energy self-sufficiency. U.S. dependence on foreign oil is just as high under all four decontrol scenarios examined as under either of the pre-EPCA scenarios considered.

On the other hand, the results are reassuring, since they imply that gradual decontrol of domestic crude oil prices has no adverse effects on either consumer prices and inflation or real output and the unemployment rate.

One interesting aspect of our results is the role played by the removal of the \$2 supplementary fees on imports of crude oil and refined petroleum products that were part of the EPCA compromise. Eliminating these fees appears to have no adverse effects on energy autarky, while having favorable impacts on the general economy

that are larger in magnitude than the impacts found for any other scenario.

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