THE WHITE HOUSE

WASHINGTON

January 14, 1991

MEMORANDUM FOR MICHAEL J. BOSKIN

FROM: **D. ALLAN BROMLEY**

SUBJECT: **1991 ECONOMIC REPORT OF THE PRESIDENT**

Your draft of chapter 3 of the 1991 Economic Report of the President, Oil Price Shocks and Economic Policy, has been reviewed. I have no substantive comments to offer from the science and technology perspective. I note that the economic impact of publicly-supported research and development is to be treated in chapter 1 and I particularly look forward to examining and commenting on that material.

Thank you for the opportunity to review this chapter.

THE CHAIRMAN OF THE
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON

January 10, 1991

MEMORANDUM FOR D. ALLAN BROMLEY

FROM: MICHAEL J. BOSKIN

SUBJECT: 1991 Economic Report of the President
Chapter 3 -- Oil Price Shocks and Economic Policy

Attached is a preliminary staff draft of Chapter 3 of the 1991 Economic Report of the President. Please let us have a coordinated set of your agency's comments in writing by close of business Monday, January 14. CEA welcomes comments and suggestions and finds them extremely helpful in preparation of the Report.

Comments should be delivered to the attention of Harry Broadman, Room 314, Old Executive Office Building. Should you or any staff member have specific substantive questions about major issues in the chapter, please feel free to contact Jim Wilcox (395-5086).

Please note that the draft is for official use only and should be held close.

Attachment

cc: White House (Porter, Gardner, Lindsey, Wethington)
OMB (Darman, Grady, Al-Samarrie)
NSC (Scowcroft, Deal)
USTR (Hills, Walters)
State (Baker, McCormack, McAllister)
Treasury (Brady, Dallara, Jones)
Agriculture (Yeutter, Gardner)
Commerce (Mosbacher, Darby, Villamil)
Defense (Cheney, Wolfowitz)
Energy (Watkins, Tuck, Stuntz, Kent)
Justice (Thornburgh, Rill)
Labor (DeArment, Norwood)
CFTC (Gramm)
Federal Reserve (Greenspan, Prell, Truman, Kohn)

CHAPTER 3

OIL PRICE SHOCKS AND ECONOMIC POLICY

IN THE SECOND HALF OF 1990, the world economy was hit with a sudden increase in the price of oil reminiscent of the oil price shocks of the 1970s. The price of a barrel of oil rose from an average of about $17 per barrel in June 1990 to an average of $36 in October. These oil price increases were triggered by the Iraqi invasion of Kuwait, an act of aggression that was met with worldwide condemnation and action.

Oil is important to our economy. During 1990, the United States consumed almost 17 million barrels of oil each day, about one quarter of total world consumption. Because oil is used so widely, and because the United States is a significant importer of oil, large and abrupt increases in its price importantly affect the economy and have significant policy implications. At present, uncertainty regarding oil prices and the prospects for a satisfactory resolution of the Gulf situation itself have contributed to the erosion of consumer confidence evident at the end of 1990. It is widely expected that when the situation is resolved oil prices will decline significantly.

Concern over the impact of the present oil market situation on the economy reflects, in large part, the experience with the

oil price shocks of 1973-74 and 1979-81. The U.S. economy registered its highest unemployment and inflation rates in the postwar period at the time of the oil price shocks of the 1970s. In the wake of the first oil price shock, the unemployment rate rose to a postwar record high of 9 percent in May of 1975. The annual consumer price inflation rate soared to an average of 12.3 percent in 1974. Similar adverse effects followed the second oil price shock. The unemployment rate reached 10.8 percent in November of 1982, another postwar record high, and inflation rose to an average of 13.3 percent in 1979. These economy-wide problems associated with sudden oil price increases pose difficult and important policy challenges.

While there are some similarities between the current episode and prior oil price shocks, important differences suggest that the impact of the current shock will be much less severe than the unemployment and inflation increases that followed the earlier shocks. Although the recent oil price increases are having adverse short-term effects on economic performance, their wake is likely to be neither as large nor as long-lasting as those left by the shocks of the 1970s. A crucial difference is that macroeconomic -- monetary and fiscal -- policy has kept inflation relatively low and stable in recent years, thereby enabling it to respond to the shock without causing a prolonged recession or permanent increase in inflation. In addition, the

amount of oil used relative to the size of the economy has decreased and the flexibility of energy markets has increased since the oil shocks of the 1970s. These improvements have significantly enhanced the ability of the economy to adjust to changes in oil prices.

With the benefit of hindsight, it is clear that the misguided economic policies in the period preceding and immediately after previous oil price shocks significantly worsened their effects on the economy. The historical experience and economic research on oil price shocks of the 1970s and policies associated with them have taught us much about designing macroeconomic and microeconomic policies for a world subject to such shocks. Taking account of continuing uncertainty regarding future oil prices, it is essential that our policies let markets work and set out a credible long-term course for the future.

OIL PRICE SHOCKS

A price shock is a large and unexpected change in the price of a commodity important to the economy as a whole. Most price changes, such as changes in the price of salt, merit little attention from policymakers. Indeed, continually adjusting prices that reflect changing economic conditions are a sign of a

healthy economy. The most important price shocks to the world's economies during the past two decades have been the sudden and substantial changes in the price of oil. Because oil is consumed in significant amounts and is used intensively in the production of other goods, and because the United States imports a large amount of oil, oil price shocks can have large economy-wide repercussions.

OIL PRICE MOVEMENTS IN 1990

The recent increase in oil prices began in July 1990, as the members of OPEC began negotiations to reduce their supply of oil to world markets. The spot market price, (the price at which crude oil for immediate delivery is bought and sold), rose from an average of about $17 per barrel in June of 1990 to about $21 at the end of July.

On August 2, Iraq invaded Kuwait. The spot price rose quickly to about $28 per barrel on August 6 and continued rising to as high as $40 per barrel in mid-October. From mid-October through the end of 1990, the spot market price generally declined and at the end of 1990, the spot price of oil was about $28 per barrel.

The uncertainty concerning the timing of the resolution of

the Gulf crisis has fueled uncertainty about future oil supplies, which in turn has increased the precautionary demand for oil inventories. By November 1990, additional supply from other sources had completely offset the loss of 4.3 million barrels in daily production from Iraq and Kuwait. However, these production increases have left less standby crude supply or refining capacity to meet future contingencies. Hence, recent oil prices reflect the continuing uncertainty about <u>future</u> supply.

It is clear that the proximate cause of the rapid oil price increase in late summer of 1990 was the Iraqi invasion of Kuwait and threat to Saudi Arabia, to which the international community responded vigorously, seeking to reverse the action that precipitated the oil price increase. The rapid and massive deployment of multinational forces to the Gulf, coupled with the United Nations embargo against Iraq, checked this aggression. Had Iraq dominated both Kuwait and Saudi Arabia, it would have controlled over one-sixth of world oil production and over one-third of the world's proven oil reserves. This strong response entails substantial sacrifices. However, the resolve of the world community that aggression and intimidation that threatens both peace and economic security has averted even sharper increases in the price of oil and a more severe deterioration of economic conditions.

does not make sense

PREVIOUS OIL PRICE SHOCKS

There are both similarities and differences between the present situation and the oil price shocks of the 1970s. The 1973-74 oil price shock raised prices sharply, after several decades during which oil prices had fallen relative to the prices of non-energy goods and of coal. That preceding decline in real oil prices encouraged greater oil use and discouraged further exploration and investment in oil production.

As rapidly growing oil demand brought on by robust growth of the world economy led to an increasingly tight oil supply situation, OPEC began to engineer a series of large price increases, leading to a tripling of the world price of oil from 1973 to 1974. The second oil price shock, often associated with the Iranian revolution and the outbreak of the Iran-Iraq war, began in 1979. Again oil prices soared, more than doubling from 1979 to 1981.

While both of the earlier oil shocks followed several years of stable or slowly falling oil prices, world oil prices have been highly volatile since their sharp fall in 1986. From a low of about $11 per barrel in July 1986, oil prices fluctuated within the $13 to $22 range between 1987 and 1989. During 1990, oil prices fell from nearly $23 in January to a low of $17 in

June. Since July, when the present shock began, world oil prices have continued to be far more volatile than they were in the early stages of prior adverse shocks.

In both of the earlier oil shock periods, oil prices increased steeply and fairly steadily over a period of more than 2 years. In the recent episode, oil prices rose substantially through mid-October and then generally receded through the end of the year. Throughout this period, however, the price of oil expected to prevail further in the future has changed relatively little: Chart 3-2 shows that the price of oil to be delivered near the end of 1991 currently differs from its pre-invasion levels by less than $4 per barrel.

chart 3-2 not here reference occurs before that to 3-1

SUMMARY OF OIL PRICE SHOCKS

- Price shocks are large and unexpected changes in the price of a particular commodity important to the economy as a whole.

- The uncertain duration of the shock remains a primary cause of the oil price increase.

not convincingly argued

- The 1990 oil price shock is similar to the oil price shocks in the 1970s in that the price of oil rose suddenly and

substantially. Unlike the earlier shocks, oil prices retreated considerably shortly after their initial increase in 1990, but remain highly volatile.

ECONOMIC EFFECTS OF OIL PRICE SHOCKS

The economic impact of an oil price shock depends on both the magnitude of the shock and the underlying susceptibility of the economy to such shocks. Structural changes since the 1970s have helped to reduce the vulnerability of the economy to oil price shocks.

EFFECTS ON INFLATION

An increase in the price of oil has pervasive effects on prices throughout the economy. Since oil is both consumed directly and used as input to the production of other goods and services, increases in its price directly and indirectly increase the overall price level. Higher prices for petroleum products like gasoline and heating oil directly affect the general price level. Indirect effects arise from the fact that prices charged by businesses for goods and services often reflect the costs of oil used in their production or distribution. The larger the share of consumption devoted to petroleum products the larger the

direct contribution of oil price shocks to inflation. The more oil intensive the economy's production processes are, the larger the indirect contribution of oil price shocks to inflation.

By raising the overall level of prices, oil price shocks may eventually also lead to a higher level of nominal wages. This in turn might lead to further price increases, which would amplify the increase in the aggregate price level due to an oil price shock.

It is important to distinguish between continuing inflation and a once-and-for-all increase in the price level. An increase in oil prices raises business costs, and therefore prices, to a higher level as well. Thus, an increase in oil prices can produce a bout of temporarily higher inflation during the time while prices are moving toward their new levels. As prices finish their adjustment to the oil price shock, however, this component of inflation will disappear. As a result, the inflation rate will revert toward the rate attributable to the longer run growth rate of money and credit in excess of the growth rate of the economy's productive capacity.

Economy-wide Energy Intensity

Oil intensity, and more generally, energy intensity are

important indicators of the sensitivity of the general price level to an oil price shock. The energy intensity of the U.S. economy, measured as the ratio of primary energy use (in physical units) to real national output, has decreased by more than 28 percent between 1972 and 1989. At the same time, the share of oil in total energy use has fallen from 46 to 42 percent, with an even larger decline, from 28 percent to 20 percent, outside the transportation sector.

The trend toward lower energy intensity reflects the combination of two forces. First, there have been significant improvements in the efficiency of residential, commercial, industrial, and transportation energy use since 1973. For example, between 1973 and 1987, the average energy intensity of steel production fell by 20 percent and the amount of energy used to heat one square foot of residential space declined by 30 percent. Many of these adjustments have been the natural response to the higher relative price of oil products after the price shocks of 1973-74 and 1979-80. At the same time, the mix of outputs in the economy as a whole has shifted away from energy-intensive heavy industrial products, such as steel, towards less energy-intensive products and services.

<u>Is the U.S. Wasteful?</u>

The available evidence on energy use does not support the widely held belief that the United States is a profligate energy user compared to other countries. International comparisons of aggregate energy intensities can be highly sensitive to assumptions used to make the calculation. In particular, the exchange rates used to translate national output values into a common currency are subject to large swings and often bear little relationship to the purchasing power of different currencies within their respective national economies. However, it is clear that energy intensity in the major industrialized countries has fallen substantially since 1973 (see Chart 3-1).

transition from overall energy intensity to transportation energy usage

Direct physical comparisons of energy use per unit of output in individual sectors also show that energy intensities across countries have increasingly converged. Differences in natural resources, population density, industrial mix, urban layout, commuting distances, and dwelling sizes appear to account for variations in energy use patterns across countries (see box 3-1).

BOX 3-1.--<u>Energy Use: How Does the United States Compare to Other Countries in Automobile Transportation and Residential Heating</u>?

Recent data show that the average new car purchased in the United States achieves a level of fuel economy virtually identical to the comparable average level in Germany and Japan.

However, in 1988 the United States had 573 passenger cars for every thousand people, compared to only 476 cars per thousand people in West Germany and 251 cars per thousand people in Japan. Moreover, in the same year, the average car accumulated over 10,100 miles of travel in the United States, compared to 8,000 in Germany and only 6,500 in Japan.

In part, divergent patterns of vehicle ownership and use reflect large differences in retail gasoline prices--German and Japanese retail prices were $2.20 and $3.43 per gallon in 1988, as compared to a U.S. price of $0.95. Higher foreign prices primarily reflect differences in taxes on gasoline: combined Federal, State, and local taxes of 29 cents per gallon were far below German and Japanese taxes of $1.42 and $1.60. However, comparisons with Canada and Australia, which also have high annual miles of travel per vehicle despite gasoline prices significantly above U.S. levels, suggest that low population density and greater home-to-work commuting distances provide the primary explanation for our extra travel as compared to Germany and Japan.

A greater reliance on automobiles, rather than the energy inefficiency of those automobiles, is therefore the primary reason the United States uses so much oil in the transportation sector. As older cars are replaced and the efficiencies of on-the-road fleets equalize, differences in transportation fuel use can only be narrowed using policies that reduce U.S. automobile travel significantly.

Energy use in residential heating provides another example of the importance of choosing an appropriate basis for comparisons. Correcting only for climate differences, the United States used more heating energy per dwelling than other industrialized countries in 1987 (although the gap between the United States and other countries narrowed substantially over the last 15 years). However, when the greater floor space in a typical American home is taken into account, the United States was among the more efficient users of residential heating energy.

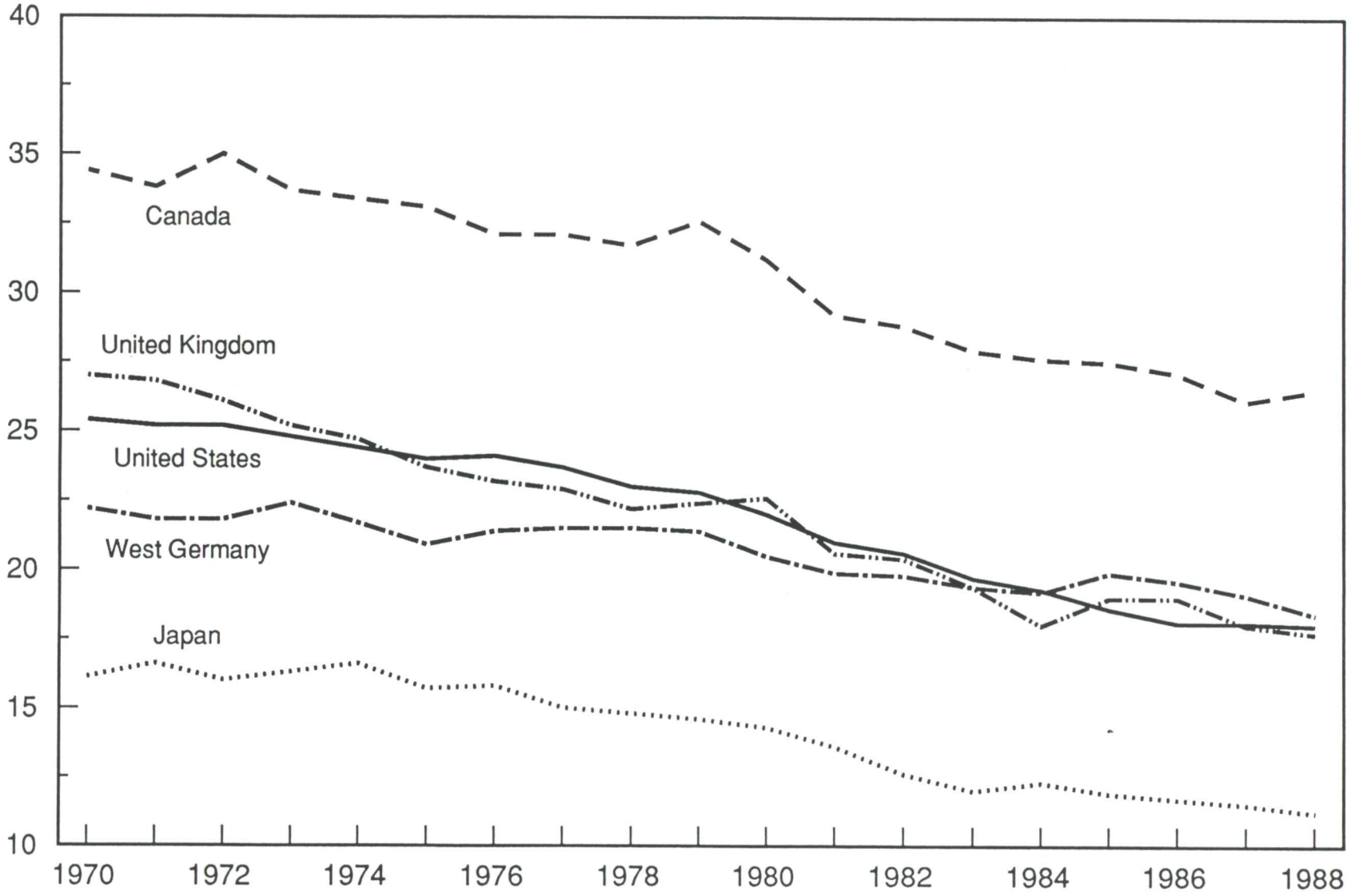
EFFECTS ON REAL GROWTH

The major macroeconomic effects of an oil price shock stem

Chart 3-1 **Energy Consumption**

Energy intensity in the major industrialized countries has fallen since the 1973 oil shock.

Thousand BTU per 1985 U.S. Dollar of GDP/GNP



Source: OECD, International Energy Agency

from reduced real demand for goods and services by consumers and businesses. This decline in real spending will lead to slower growth of real GNP and a decline in employment growth. These output losses may be large enough to cause a recession, especially if the oil price shock occurs in a weak economy. However, even if oil prices remain high, these demand effects are temporary and eventually the economy will return to its long-run growth path.

The principal channel for the reduction in demand is through the higher level of general prices generated by the oil price shock. This higher price level results in reduced real supplies of money and credit -- nominal money or credit deflated by the price level -- unless nominal supplies are raised proportionately. Lower real supplies of money and credit cause a tightening in credit markets and thereby raise interest rates. Higher interest rates reduce household spending on interest-sensitive durable goods such as automobiles and furniture. The credit tightening is likely to lead to reduced business investment spending for equipment, factories, and inventories. Residential construction is also likely to be adversely affected. This reduction in spending may then reverberate through the economy, leading to a larger cumulative effect on economy wide spending and income. The empirical analysis reported below indicates that this adverse effect on output and unemployment of

the oil price shock stemming from the decline in the real volume of money and credit is quantitatively quite significant.

Of course, this credit tightening effect of oil price shocks does not take place in the absence of other factors which might affect interest rates. For example, in the second half of 1990 interest rates would probably have been on a generally downward trajectory without the oil price increase because of the weakening economy and the new budget legislation. Lower real money and credit as a result of the oil shock may therefore have generated a slower decline, rather than an increase, in interest rates. In any case, the general decline in short-term interest rates over the second half of 1990 does not lessen the relevance of reduced real supplies of money and credit to reducing expenditures relative to what they would have been otherwise.

Oil price shocks reduce aggregate demand for goods and services in the U.S. for another reason: consumers must pay more to foreigners for each barrel of imported oil, leaving them less to spend on goods produced in the United States. This increase in the relative price of imports is called a terms of trade effect because the terms at which we trade U.S. goods for imports gets less favorable. For example, at current oil import levels, each $10 increase in the per-barrel price of oil shifts about $27 billion per year to foreign oil suppliers. The terms of trade

effects on aggregate demand can therefore result in a substantial reduction in aggregate spending, and therefore output and unemployment. Although the major impact on aggregate demand is temporary, an oil price increase which is permanent will have long-term effects on consumption.

EFFECTS ON PRODUCTIVE CAPACITY

suggests stuff, in fact, I believe, refers only to inability of market to respond rapidly to transients S p 17

The economy's productive capacity depends on the level of technology, the supply and quality of capital, and the number and skills of workers. Frictions can also reduce the economy's ability to produce output. Immediately after an oil price shock, workers' skills and the set of production processes embodied in the stock of capital may not be well suited to the new set of relative prices. Producers will react to the price shock by looking to production processes that use less energy. They will also shift away from producing energy-intensive goods and services whose sales will decline when, through the effects of higher production costs, the increase in oil prices raises their prices relative to those less energy intensive goods and services.

Shifts in the quantities of various goods and services demanded in turn increase demand for workers in regions and

industries that produce these goods and services. Job relocation involve costs, and takes time and, in the transition, some additional unemployment may result. During the transition, the economy's capacity to produce the appropriate combination of outputs temporarily falls in response to an oil price increase.

The effects of shocks described so far tend to diminish over time. There may also be effects that, instead, cumulate over time. Businesses that were cost-efficient at pre-shock energy prices may find that their operations are inappropriately energy-intensive when oil prices rise. Over time, as their stock of plant and equipment depreciates, they will replace it with more energy-efficient capital. To the extent that energy-intensive production processes are also equipment-intensive, these businesses may opt for less capital and energy intensive production methods, and opt for more labor intensive processes. The size and energy intensity of the capital stock are likely to change fairly gradually over time, as investment flows bring more energy efficient capital into the aggregate capital stock. To the extent that the re-alignment of the capital stock called for by the changed relative price of oil reduces worker productivity, such changes can affect the economy's ability to supply output over the longer term. Such effects are likely to be negligible in the near term, but may be more sizable as time passes.

The Role of Market Flexibility

The extent to which the ability to supply output is curtailed in the short run by an oil price shock is importantly influenced by the flexibility and responsiveness of markets. The adaptability of the labor markets in terms of the location, skills, and training of workers is a crucial determinant of such frictions. The willingness and ability of workers to respond to changing labor market conditions prevents such frictions from being unnecessarily prolonged and costly. Structural reforms have also made both energy and non-energy markets more flexible than in the 1970s, and therefore better able to respond to changes in energy prices.

Energy Futures Markets

The development of futures markets for oil since the 1970s is an important structural change in the way oil price shocks affect the economy. Futures markets provide a public forum in which commitments to deliver a standard amount of a commodity at a specified future date and location can be bought and sold. Trading in organized spot and futures markets serves two important functions: price discovery and risk-shifting. Price discovery is achieved by placing accurate information regarding the latest market activity in a centralized public forum. In

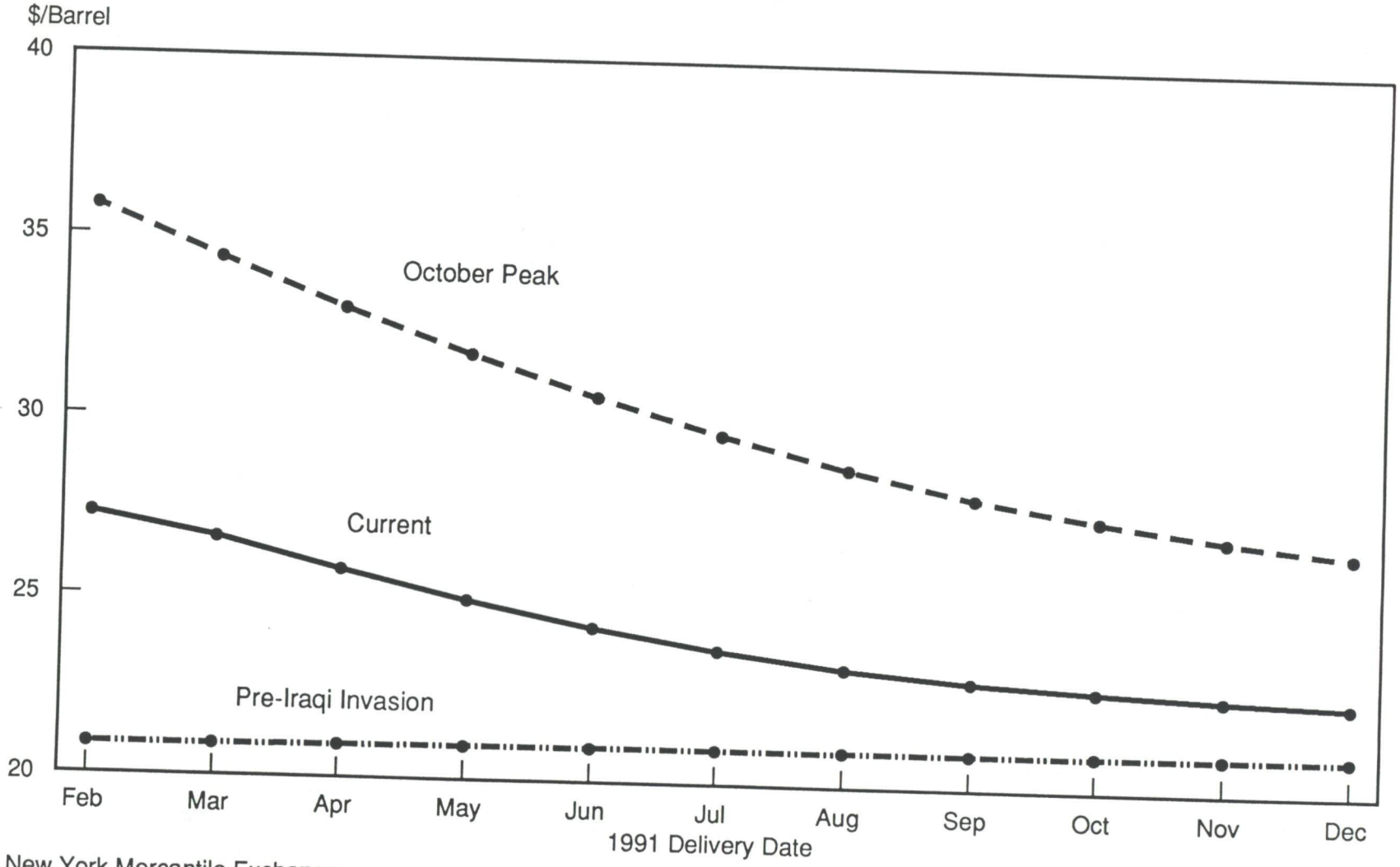
this respect, commodity markets are no different than stock markets. Absent such a system, each trader would need to collect its own intelligence regarding recent transactions, placing small traders at a significant information disadvantage in dealings with larger ones.

Risk-shifting, or hedging, is an activity undertaken by firms or individuals with a direct business interest in the production, distribution, or use of the commodity being traded. Producers of a commodity might wish to protect against a price decline by locking-in a future commitment to deliver at a fixed price. Processors desiring to protect against a possible rise in product prices, can hedge by buying future delivery commitments at pre-specified prices. The prices at which demand and supply of future delivery commitments balance reflects current market expectations of prices. For example, Chart 3-2 shows that the prices of oil for delivery at the end of 1991 have not risen substantially from their pre-invasion levels.

Opportunities for hedging provided by oil futures markets serve the public interest in two main ways. First, hedging allows firms participating at only one stage of the oil business to remain viable in the volatile world oil markets of the late 1980s and early 1990s. The demise of non-integrated refiners, marketers, and distributors would result in lessened competition

Chart 3-2 **Oil Futures Prices**

Although the price of oil for immediate delivery has fluctuated widely, the price of oil to be delivered after mid-1991 changed relatively little between July 1990 and January 1991.



New York Mercantile Exchange

and increased profit margins in the petroleum business, raising costs to consumers. Second, hedging has allowed buyers to make maximum use of opportunities to acquire supplies at attractive prices. As oil prices fell from $21 to $15 per barrel in the first half of 1990, oil companies accumulated record private stocks. Their ability to hedge against a continued decline in prices using oil futures markets allowed them to share the risks of holding these large stocks.

MAGNITUDE OF THE INFLATION AND REAL GROWTH EFFECTS

There is general agreement among economists that output and inflation respond to oil price shocks as described above. However, there is more disagreement and uncertainty about the size of the effects. By examining a number of econometric models, which reflect the experience with previous oil shocks, it is possible to develop quantitative ranges for the effects that reflect the uncertainty. The ranges of magnitudes reported here are based on a variety of models and reflect some, but not all, of the structural and expectations effects.

For example, one factor not taken into account explicitly is the economy's reduced energy intensity since the 1970s. Models based on historical data unavoidably reflect the past, including energy intensity, such are quite likely to over-estimate the

effects of oil price shocks on today's economy. In addition, reduced regulation, particularly of the energy sector, permits the economy now to more freely respond to changing oil prices. Thus, historical relationships may somewhat overstate the current impact of oil price shocks.

A factor that the analysis does endeavor to incorporate is that both consumers and businesses base their actions on expectations of the future, sometimes by using data from futures markets. This forward-looking behavior will allow a quicker adjustment of output and prices to changing economic conditions. Moreover, long-term interest rates may change in anticipation of upcoming conditions, rather than lagging behind them. Of the econometric models examined, those that incorporate forward-looking behavior suggest that output growth is likely to be curtailed less than models that omit the forward-looking aspects of economic behavior. This difference in models is reflected in the ranges.

Consider, for example, an increase in the price of oil of 50 percent that lasts for four quarters before returning to pre-shock levels. Following an oil price shock, output growth would be expected to slow as the two factors described above suppress real demand growth. The higher price level reduces the real supplies of money and credit, thereby raising interest rates,

reducing credit-sensitive expenditures relative to what they would otherwise be. In addition, the diversion of more income to pay for imported oil reduces real consumer spending on U.S. goods and services. The spending declines and subsequent repercussions resulting from the 4-quarter, 50-percent oil price shock would be expected to reduce real GNP growth by about 1 to 1-1/2 percentage points in the four quarters that follow the shock. As a result of the decline in real output, employment growth is also likely to soften. The unemployment rate would be expected to rise by an average of about 1/2 of 1 percentage point over the same 4 quarter period.

There is even less certainty about the quarter-by-quarter pattern of the effects on the economy than about the magnitudes of the effects reported above. The effects of the oil shock on real GNP growth are expected to diminish as time passes. The output declines are the largest in the quarters immediately following the onset of the oil price shock. As the frictions associated with the shock dissipate, the economy would be expected to resume growth along its longer run growth path. And as it recovers toward that path, the economy is forecast to grow <u>faster</u> than it would otherwise. Thus, after having its real growth initially suppressed, the economy rebounds.

Such an oil price shock would also be expected to raise

inflation, but, as with the output effects, the change is temporary. As measured by the CPI, the inflation rate is forecast to exceed what it would have been otherwise by about 1 to 2 percentage points over the four quarters following the shock. The GNP deflator captures the prices of all the goods and services produced by the Nation. Inflation as measured by the GNP deflator would be less affected because petroleum products constitute a larger share of household expenditures than of total national production. This is an illustration of the point made above that the effects on prices, and on the economy generally, are related to oil intensity. The GNP deflator in the four quarters following the shock could be expected to be about 3/4 to 1-1/4 percentage points above the rate absent an oil price shock of this magnitude.

The temporarily higher inflation rate would be expected to reach its peak in the quarter after the shock begins, and would then taper off thereafter. Though inflation is raised on average during the four quarters following the shock, much of the increase takes place in the first two quarters after the oil price increase. By the fourth quarter following the shock, inflation is forecast to have reverted close to its underlying rate. To the extent that oil prices fall, the processes would operate in reverse: inflation would then be expected to be temporarily lower than otherwise.

The oil price increase experienced in 1990 would be similar to the one whose effects are reported above if oil prices gradually return to pre-shock levels later this year, as suggested by futures market data. Shocks that increase prices less or for a shorter duration will have commensurately smaller effects, while larger shocks will have a more serious impact.

SUMMARY OF ECONOMIC EFFECTS OF OIL PRICE SHOCKS

- An abrupt increase in oil prices temporarily raises the inflation rate and lowers the real growth rate.

- Oil price shocks reduce aggregate demand by tightening money and credit market conditions and leaving consumers less income to spend on U.S. goods.

- The energy intensity of the U.S. economy and oil's share in total energy use have both fallen significantly since the 1970s, reducing the sensitivity of the economy to oil price shocks.

- Structural changes in the energy sector and have significantly increased the flexibility of the economy,

further reducing our vulnerability to oil price shocks.

MACROECONOMIC POLICIES

The Administration remains committed to the goal of strong economic growth. Keeping inflation low and stable is essential to achieving this goal. Although the recent oil price shock has reduced economic growth and raised inflation, the proper design of macroeconomic policies can ensure that these effects will be temporary and that the economy will soon return to solid growth with lower inflation.

THE ADVANTAGES OF SYSTEMATIC POLICIES

Systematic monetary and fiscal policies are likely to lead to better economic performance than a sequence of discretionary reactions to economic news aimed at affecting near-term economic conditions. Businesses and households base their assessments of the future on their expectations of interest rates, inflation, tax rates, and other important economic magnitudes. Such forward-looking assessments are important factors in their plans and decisions. Frequent and unanticipated policy changes produce uncertainty in the private sector and reduce the ability of businesses and households to make informed long-term plans.

The Importance of Credibility

One of the most important advantages of systematic policies is that they lead to policy credibility, the belief that policies will be adhered to consistently over the long run. But the advantages of credibility extend beyond the gains achieved by reducing uncertainty about future policies. Credibility raises the likelihood that the private sector will enter into contracts and other longer run economic arrangements, such as plans for wages, credit, and production, that are better aligned with upcoming conditions.

Systematic policies do not imply rigid adherence to fixed settings for the instruments of policy. Adhering to systematic policy may require changes in such instruments as the money supply growth rate or interest rates, for example, in response to shocks. Temporarily changed monetary and credit growth rates in the wake of an oil price shock or other, major disturbance could ameliorate adverse effects on unemployment and output. Once the price shock has passed through the economy, the policy would readjust monetary and credit policy instruments in a way that would continue to guide the economy toward its longer run goals.

Appropriate systematic policies may be quite complex to

provide for significant, unforeseen changes in the economy. Such a systematic policy is likely to be regarded as improving economic performance relative both to non-systematic policies and to overly rigid systematic policies that make no allowance for important changes in economic circumstances. One example of an overly rigid monetary policy holds constant the growth rate of the money supply. Such an inflexible policy has not been attractive in practice because of its inability to respond appropriately to recognizable shifts in economic relationships. Over the past two decades, for example, the relationship between money income has shifted in response to deregulation and innovation in the financial sector.

what and what?

However, when systematic policies call for changes in policy instruments, it may be difficult for the public to verify that an unchanging systematic policy is actually being followed. In this regard, clear articulation and widespread understanding of the policy governing short-run adjustment of instruments following price shocks bolsters credibility.

Systematic, but rigid, policies, even if maintained, would be likely to produce sub-par economic performance. In practice, this inadequate performance is also likely to lead to their abandonment. Thus, inflexible policies are neither desirable nor credible.

DESIGNING MONETARY AND FISCAL POLICIES FOR PRICE SHOCKS

Both fiscal and monetary policy have a role to play in mitigating the impact of price shock and allowing the economy to return quickly to its long-run growth path. The Federal Reserve's policy setting for money growth and the Federal funds rate can temper the shortfall in production and employment. Similarly, changes in government spending or in tax receipts -- as would occur automatically as the economy fluctuates -- alter the aggregate demand effect of a price shock.

Fiscal Policy

A well-designed fiscal policy will automatically respond to the oil price shock. To the extent that real GNP, incomes and employment decline, income tax and other income-related tax payments will automatically fall and transfer payments provided by programs like unemployment insurance will automatically rise. These "automatic stabilizers" will cushion the reduction in after-tax income and spending power, and thereby help sustain spending and employment.

These automatic stabilizer effects have been given more flexibility to work effectively by the recent budget deficit

reduction legislation. The previous formulation of the Gramm-Rudman-Hollings (GRH) law set nominal dollar deficit targets which according to the law were not changed with changing macroeconomic conditions that would accompany price and other shocks. In this sense the old law actually put constraints on the operation of automatic stabilizers. The revisions to GRH embodied in the new budget law allow the deficit targets to be adjusted through 1993 in response to changes in economic conditions as reflected in annual forecasts made by the Administration.

In fact, the new budget legislation provides a 5-year blueprint for fiscal policy and is an example of a systematic fiscal policy that specifies clearly a plan for achieving its goals. By determining spending and taxing levels well in advance, as well as providing for more stringent enforceability provisions, the new legislation institutes a more systematic and credible fiscal policy. That policy sets caps on the level of discretionary government spending for each of the next 5 years.

The new law provides for a relatively gradual phase-in of revenue and spending changes over the next 5 years to avoid causing a shock to aggregate demand. The recent oil price shock does not alter the advisability of the change toward long-run fiscal balance recently enacted or provide reason to postpone

that shift.

need to clarify what changes are being referred to

As described in Chapter 2, since the pattern of these changes was legislated, monetary policy can systematically respond to this change (ie GRH revisions) in fiscal policy by reinforcing the decline in interest rates. Adjusting monetary policy in this direction can encourage offsetting private sector spending increases, especially on growth-enhancing investment projects, sufficiently large to prevent appreciable declines in employment and production. The oil price shock does not alter the appropriateness of this monetary policy response.

Additional discretionary changes in fiscal policy designed to offset the price shock would not be appropriate, although as indicated in Chapter 2, there is still a need for tax reform to improve incentives for long-run savings and investment. The institutional setting in the United States prevents discretionary changes in the instruments of fiscal policy from responding in a timely manner with changes in tax rates or public spending. Changes in Federal tax rates or public spending require legislative approval, which typically takes many months. In practice, actual implementation of such changes can often take longer than the shock that they are intended to offset.

It may well be that the oil price increases starting in the

summer of 1990 do not endure for a period as long as the gestation period for a U.S. fiscal policy response. The cumbersome nature of the fiscal policy apparatus tilts the balance toward relying on the automatic policy response rather than discretionary responses to oil price increases and many other types of shocks.

Monetary Policy

Monetary policy has a key role to play in ensuring that a one-time increase in real oil prices and in the general price level are not converted into an increase in the underlying inflation rate, for example, via a wage-price spiral. The U.S. economy has benefited from a monetary policy that has helped keep the rate of inflation low and steady throughout much of the expansion that began in 1982. The move to prevent inflation from rising as the economy grew quicker in 1987-88 has prevented the economy from repeating the mistakes of the 1970s, when policy spurred demand along a path of accelerating inflation. Instead, the recent record peacetime recovery has been characterized by low underlying inflation. The credibility that this experience has built, combined with the recent relatively low inflation rates, has provided the Federal Reserve with more elbow room to lower interest rates without undue concern that inflation expectations will rise.

The Administration is supportive of the Fed's long-run goal of gradually reducing inflation. As long as the stability of the relationship between M2 growth and inflation persists, the Federal Reserve can lead the economy toward price stability by gradually reducing long-run growth of M2 toward the rate of expansion of the economy's productive capacity. Such a policy does not preclude allowing higher or lower growth rates of M2 over shorter periods.

Temporarily faster growth of M2 can help to achieve the second objective of preventing an unnecessarily large slowdown in economic growth following an oil price shock. An increase in M2 growth, which would lower interest rates and spur economy wide spending, would help to offset the decline in the real supply of money and credit that occurs when an oil price shock raises the general price level. Such a policy would also prevent an undue decline in economic growth and increases in the unemployment rate.

This temporary easing of monetary policy need not increase the underlying inflation rate. Because a one-time oil price shock implies a one time increase in the price level, only a short-run easing of money and credit conditions would be warranted. The oil price shock itself will cause only a

temporary increase in the inflation rate if monetary growth reverts to a rate consistent with low and stable inflation after the one time adjustment of the money supply in response to the price shock.

Relative to many European economies, the United States is fortunate that its wage-setting arrangements do not rapidly transmit the higher inflation caused by an oil price shock into higher wages and salaries. Some have suggested that the centralized bargaining commonly used abroad to set wages allows excessive reaction of wages to higher prices when there have not been compensating productivity gains. Such a reaction would tend to deter monetary policy from loosening when an oil price shock strikes, because the resulting stimulus would be likely to be siphoned into producing higher wages and prices rather than higher output and employment. The relatively decentralized labor markets in the United States tend not to raise labor costs inappropriately when oil price shocks take place. Rather they adjust much more gradually. This gradual reaction permits the monetary authority to react to oil price shocks without concern that its efforts to stimulate output and employment will be negated by rapid wage adjustments.

<u>International Economic Coordination</u>

U.S. economic policy is informed by frequent consultation with policymakers from other countries. For example, policymakers of the major industrial countries meet regularly through multilateral institutions such as the Group of Seven, the Organization for Economic Cooperation and Development (OECD), the International Energy Agency (IEA), and the International Monetary Fund (IMF) to discuss both long-term developments and short-term macroeconomic prospects. There are also numerous opportunities to share views with representatives of developing countries. In the aftermath of the oil price shock, such consultations have played a constructive role.

The Iraqi invasion of Kuwait brought forth an unprecedented degree of international diplomatic and military coordination. The oil price shock that the invasion produced calls for international economic coordination as well. The appropriate macroeconomic policy response to the price shock depends not only on the direct international repercussions, but also on the policy responses of our major trading partners.

LESSONS FOR MACROECONOMIC POLICIES FROM PREVIOUS SHOCKS

The experiences of the United States and other large industrialized countries during the periods surrounding prior oil

price shocks show the crucial role that maintaining credible and systematic long-run fiscal and monetary policies play in allowing the economy to respond relatively smoothly to oil price shocks.

Inflation Prior to the Oil Price Shocks of the 1970s

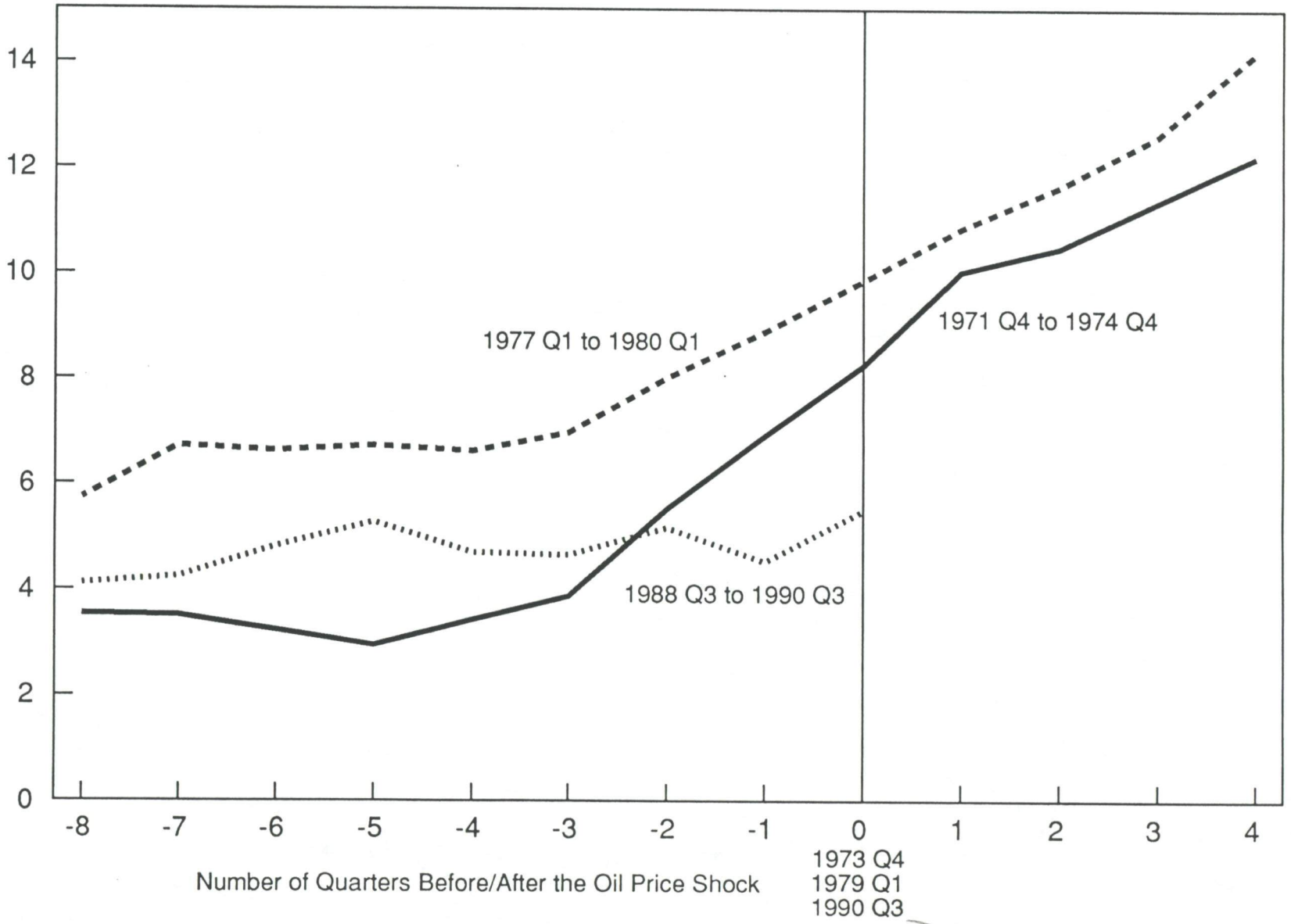
Before the onset of both the 1973-74 and the 1979-81 oil price shocks, inflation rates in most industrial countries had risen to worrisome levels and were continuing to rise. There was considerable concern that the overly expansionary monetary and fiscal policies during the preceding years were building increasingly high rates of inflation into their economies. As a result, by the time the oil price shocks began, several of the industrialized countries had already moved to tighten monetary policy.

In the 1970s, monetary policy had shown little willingness to resist the high and rising inflation rates. Policy was in general too accommodative to inflation and in fact excessive monetary expansion has generated inflation in many countries. Thus, the monetary policy authorities had relatively little credibility: there was little reason to believe that inflation would be restrained even before the oil price shock occurred. Chart 3-3 plots U.S. consumer price inflation during the 1970s with a focus on the periods before and after oil price shocks.

Chart 3-3 **Inflation and Oil Shocks in the United States**

Inflation was high and rising before the two oil price shocks of the 1970s but was low and steady before the 1990 shock.

CPI, Percent Change from 4 Quarters Ago



The chart reveals the often overlooked fact that the inflation rate was rising, and rising at a fairly rapid rate in the period preceding each of the oil price shocks of the 1970s. After having been very low and stable until the early 1960s, inflation then rose steadily, apart from its temporary suppression when price controls were in effect in the early 1970s. The oil price shock then put additional upward pressure on the inflation rate. To prevent inflation and expectations of inflation from spiraling further upward, monetary policies were tightened generally as the oil price shock hit. With little credibility, there was little room for monetary policy to permit the price shocks to affect only the price level without giving markets the impression of continued accommodation and tolerance of higher inflation. An increase in money growth could not credibly be viewed as temporary.

As the contractionary effects of the 1973-74 oil price shock and restrictive policies were felt, policy again returned to an overall accommodative stance. The deceleration in money supply growth that accompanied the 1973-74 recession was followed by a re-acceleration: M2 grew at double-digit rates from 1975 through 1977. Fueled by faster money supply growth, spending grew at rates incompatible with low inflation through the end of the decade and culminated in the high and rising inflation rates at the late 1970s.

Hence, by the late 1970s, the world economy was again overheating and inflation was again high and rising, as the boom-and-bust pattern was being repeated in other industrialized countries as well. Again having excessively stimulated demand, these countries found they had little credibility to temporarily ease policy in response to the second oil price shock without further raising inflation and expectations of it. Thus, to prevent their already uncomfortably high inflation rates from accelerating, most countries again tightened monetary policy when the 1979-81 oil price shock struck.

The United States was no exception. As indicated in Chart 3-3, the U.S. inflation rate was also accelerating in 1978. As in 1973-74, the economy faced high and rising inflation before the oil price shock took place. These high and rising inflation rates resulted from growth in demand that continually outstripped growth in supply. So long as demand, which was fueled primarily by excessively expansionary monetary policy, grew more rapidly than the economy's ability to supply goods and services, prices rose.

Japan was a notable exception and provides a useful comparison. Japan had high and rising inflation rates when the 1973-74 oil price shock occurred and inflation remained over 20

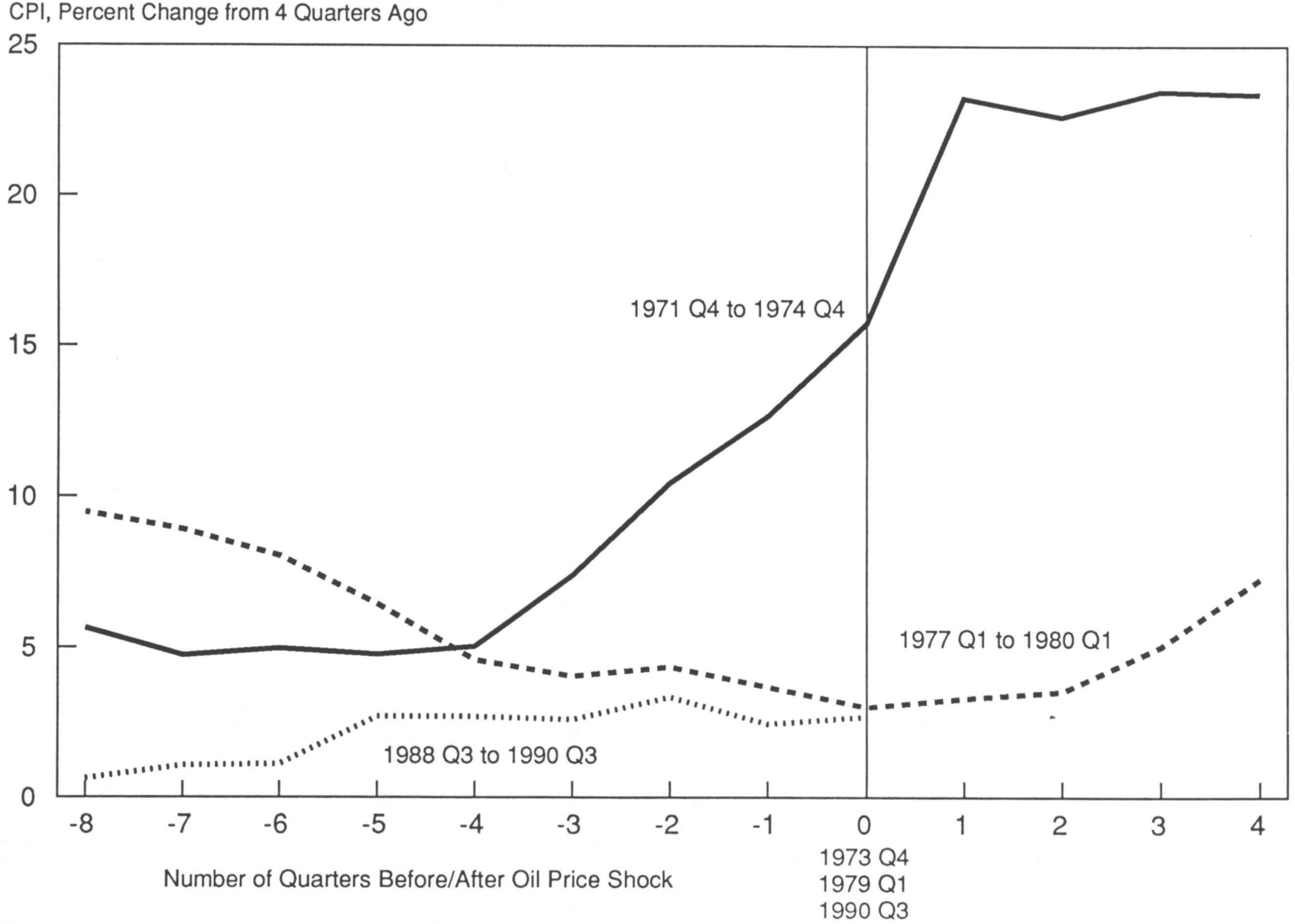
percent in the period immediately after the onset of the shock (see Chart 3-4). As with other countries, the Japanese economy experienced a severe recession in 1974-75 because the oil shock hit when there was little credibility or room for adjustment of the instruments of policy. Based on this experience the Japanese government proceeded to move to a more systematic and credible monetary policy in the latter half of the 1970s. By gradually reducing money and credit growth, they lowered inflation and kept it in check. By the time the second oil price shock hit, inflation in Japan was low and falling. The more credible systematic stance of monetary policy followed in Japan between the two oil price shocks made it possible for Japanese authorities to avoid much of the negative economic impact that other industrialized economies experienced during the second oil price shock without fear that inflation and expectations of inflation would spiral upward. The result was that, during and after the second oil price shock, inflation advanced little and output remained close to its longer run path. In fact, by the definition of recession used in the United States, Japan completely avoided a recession in the early 1980s following the second oil shock.

SUMMARY OF MACROECONOMIC POLICIES

- Policy responses to prior oil price shocks were constrained

Chart 3-4 **Inflation and Oil Shocks in Japan**

Inflation was high and rising and remained high in the first oil price shock, but was low and remained low in the second oil price shock.



by prior policy mistakes. The United States entered the two oil price shocks of the 1970s with excessive monetary expansion causing high and rising inflation.

- The relatively low and steady underlying inflation rate of the last 7 years enables monetary policy to respond appropriately to the current situation without losing its credibility in controlling inflation.

ENERGY MARKET POLICIES

The principle of providing for flexible responses to changing short-run conditions while maintaining a clear and consistent focus on long-term objectives is an appropriate guide for energy sector policies as well as for monetary and fiscal policies. In the energy sector, the experience of the 1970s shows that suppression of market price signals impedes adjustment to shocks. It is therefore important that short-run policies avoid reregulation of energy markets.

In the longer term, despite the significant progress that has been made in deregulating energy markets since 1973, important market barriers remain. The removal of these barriers can improve the routine operation of the energy sector while

providing additional flexibility to help in the adjustment to any future energy shocks and meeting our energy security needs.

ENERGY MARKET REGULATION

Energy market regulation, like regulation in other markets, imposes costs on the economy. Incorrect price signals can result in a misallocation of supplies among consumers and, as both investment and innovation are impacted over the longer term, a reduction in output that can adversely affect both producers and consumers. Regulated markets also respond poorly to shocks, which are particularly important in the energy sector. The benefits of market reliance in the energy sector can best be understood by reviewing how regulation imposed costs and impeded adjustment to the oil price shocks of the 1970s.

In the years following the 1973-74 price shock, domestic crude oil prices were controlled by regulation. Petroleum product prices in the United States were below world market levels because they reflected an average of controlled domestic and world oil market prices. Individual decisions about oil use were based on this average price, even though each additional barrel of demand was met through increased imports at the higher world price. Greater use of oil was the result. Previously these controls increased U.S. demand for imported oil.

While the process of oil price decontrol began near the time of the 1979 oil shock, the effects of the remaining controls were particularly pernicious. In particular, controls on gasoline prices, coupled with a burdensome and complex supply allocation system, prevented prices from balancing demand and supply. As a result, consumers faced the disruptive and unpleasant prospect of spending time waiting in gasoline lines.

Experience clearly shows that efforts to keep domestic prices at levels that do not clear markets will magnify rather than ameliorate the damage caused by oil price shocks. The substantial deregulation of energy markets implemented over the last 15 years allows markets to respond quickly and flexibly to changing conditions. In the second half of 1990, oil and natural gas markets without price controls or restrictions on the use of fuels have generally functioned well (see Box 3-2). While they may be unwelcome to consumers and energy-using firms, higher energy prices are clearly preferable to the alternative of policy-induced shortages caused by misleading price signals.

BOX 3-2.--Why Did Gasoline Prices Rise So Quickly During the Second Half of 1990?

Gasoline prices at the pump started to rise almost immediately after Iraq's invasion of Kuwait shook the world oil

market. It takes an average of over six weeks for gasoline produced from oil entering domestic refineries to reach the local pump. Why then, did the price of gasoline rise immediately?

One need not resort to theories of conspiracy or price gouging to explain the observed pricing pattern. Retailers, wholesalers, and refiners recognized that gasoline in the production/distribution system at the time of a crude oil price increase would have to be replaced by gasoline produced from higher cost crude. The opportunity or replacement cost of the gasoline rather than its acquisition or production cost, determines the market value of stocks on hand.

Gasoline suppliers who were able to buy low in July and sell high in August were in the same fortunate position as home sellers in the booming real estate markets of the mid 1980s, who were often able to sell their homes for large gains after short holding periods. In both the housing and gasoline markets, the logic of opportunity costs works in both directions. As crude prices fall, retail suppliers will be driven to make downward price adjustments, just as people who purchased houses at the peak of the real estate boom may be faced with the prospect of selling at a current market value below their purchase price.

not convincing

SHORT-RUN RESPONSES TO OIL PRICE SHOCKS

The use of strategic oil reserves and the limitation of futures market activity have been widely discussed as possible avenues of short-run policy response to an oil price shock. The use of strategic oil reserves remains an important option in the current situation. A limitation of futures trading, however, is more likely to be harmful than helpful.

Strategic Oil Reserves

The strategic oil reserves of the United States and other countries are intended both to deter the use of the "oil weapon" by exporting nations and to cushion the effect of sizeable, temporary, supply disruptions by augmenting the supply of oil. Presently, 586 million barrels of oil, equal to about 80 times average daily U.S. imports during 1990, are held in the U.S. strategic reserve. Release policies should aim to complement the production increases and consumption declines that naturally follow an adverse price shock, not to substitute for them. Similarly, strategic reserves should not be used to respond to oil price movements other than adverse price shocks, since to do so would have the effect of substituting government storage of oil for private storage. The International Energy Agency (IEA) provides a mechanism for international coordination of the use of strategic reserves.

The magnitude of energy price movements, which affect both the size of the income transfer to foreign suppliers and the amount of adjustment required within the economy, are one important indicator of the seriousness of a disruption. Crude oil and gasoline prices have risen substantially since August, but adjusted for inflation, they remain much lower than prices during the 1982 to 1985 period. Indeed, the average retail price of gasoline in the fourth quarter of 1990, was lower, in real

supply is lower
demand is higher
⇒ why is price lower?
should it be?

terms, than the corresponding prices in all but the last two years of the 1950s and in the first half of the 1980s.

In the present situation, United States policy has emphasized the replacement of embargoed oil with additional production from other sources. Saudi Arabia, Venezuela, the United Arab Emirates, the United States, and other producers have, in recent months, increased production by an amount sufficient to offset fully the loss of supplies from Iraq and Kuwait. These production increases have eliminated the need for continued depletion of existing private and public stocks. Had the price impact of the supply disruption been immediately attenuated through the release of strategic reserves, these production increases might not have occurred. Conservation of existing stocks can be especially attractive in situations where anxieties over the possibility of severe supply disruptions in the near future are a major influence on current prices.

Coordination among countries holding strategic reserves is another relevant consideration. Because the market for oil is a world market, a release of reserves by any one country will lower prices for consumers throughout the world. Coordination of releases can allay concerns that some countries will seek to benefit from releases made by others while withholding their own reserves.

Finally, a judgement must be made regarding the likely effectiveness of a reserve drawdown in addressing specific energy market concerns. Reserve releases are a relatively blunt instrument that may not be useful in confronting narrow problems in individual product markets. For example, an SPR drawdown would offer little relief to buyers of jet fuel, who, since August, have faced larger price increases and greater price volatility than users of other petroleum products. The use of reserves would not address the factors that have shaped the present situation in the market for jet fuel. These include the loss of production capacity in Kuwait, the capital-intensive and time-consuming nature of the adjustments required to reconfigure other refineries to produce greater volumes of jet fuel, the increased demand for jet fuel resulting from Operation Desert Shield, and the characteristics of the temporarily reduced supply of Iraqi and Kuwaiti crude oil that make it a particularly attractive source of jet fuel.

why?

most understandable factors are last in the list

Energy Futures Markets and Speculation

In the wake of Iraq's invasion of Kuwait, some commentators have blamed speculation in oil futures markets for oil price volatility. They have further suggested that the government limit futures market trading in the event of a further

significant supply disruption. Given the value of futures markets in increasing energy market flexibility, a major suspension of futures market trading appears more likely to impede rather than aid adjustment.

Box 3-3.--Futures Markets Speculation and Price Volatility

Speculative trades are transactions not motivated by a direct interest in business activities related to the production, distribution, or consumption of the commodity being traded. A speculator goes "long" by purchasing the rights to future delivery of a commodity in the hope that its price will rise as the specified delivery date approaches. If prices actually rise, the speculator profits by selling this right to an actual user; if prices fall, the speculator loses the difference between the price at which he is committed to take delivery and the actual price at the delivery date. A speculator goes "short" by selling a commitment to deliver the commodity at a future date, hoping that prices will fall.

"Long" speculators add to the demand for futures expressed by distributors or end-users who seek currently to lock in a price for their product needs in the future. This drives up futures prices. "Short" speculators, by selling their promise to deliver in the future, add to the supply. This drives futures prices down. Good argument

The major participants in oil futures markets include integrated oil companies, trader/re-sellers, trade houses, refiners, marketers, producers, end-users and traders lacking any direct business interest in oil markets. Because all but the last category of participants may engage in both risk-shifting and speculative trades, it is impossible to directly measure the extent of speculation. According to recent Commodity Futures Trading Commission data, traders lacking a direct business interest in oil markets accounted for less than 5 percent of total transactions in August and September of 1990. Moreover, the bulk of their transactions were "short" rather than "long". The net effect of the participation of these purely speculative traders in futures markets in the immediate aftermath of the oil price shock was therefore to reduce futures prices rather than to

raise them .

Because it is impossible to determine the underlying motivation for an individual futures market transaction, the claim that speculation has caused higher oil prices cannot be conclusively supported or refuted, although the available evidence strongly points toward refutation. (See Box 3-3). In any event, limits on futures trading in the United States cannot stop speculation: any such restrictions would simply shift activity to offshore markets or to private, unreported, transactions.

exchange certainly facilitates trading

Should a further significant disruption occur, a brief suspension of futures trading may be justified to provide time for relevant information to flow into the marketplace. However, once information has been widely disseminated, there appears to be no economic basis for stopping the market from expressing its evaluation of future conditions. The prohibition of transactions that serve hedging and risk-shifting purposes would impose a real economic burden if futures markets were closed.

The closure of futures markets would spawn dispersed

transactions between individuals operating without the price information generated by organized markets. Ironically, the public at large, having the least access to information, would be most disadvantaged by market closures. In a fluid economic situation, ignorance is hardly ever bliss.

LONGER TERM ENERGY POLICIES

Longer term policies affecting the energy sector can play an important role in facilitating the efficient operation of the economy. The record of the past 40 years shows that the real price of energy does not rise inexorably. Rather, the real prices of crude oil, oil products, and electricity have fluctuated significantly, with periods of falling as well as rising prices. (See Chart 3-5.)

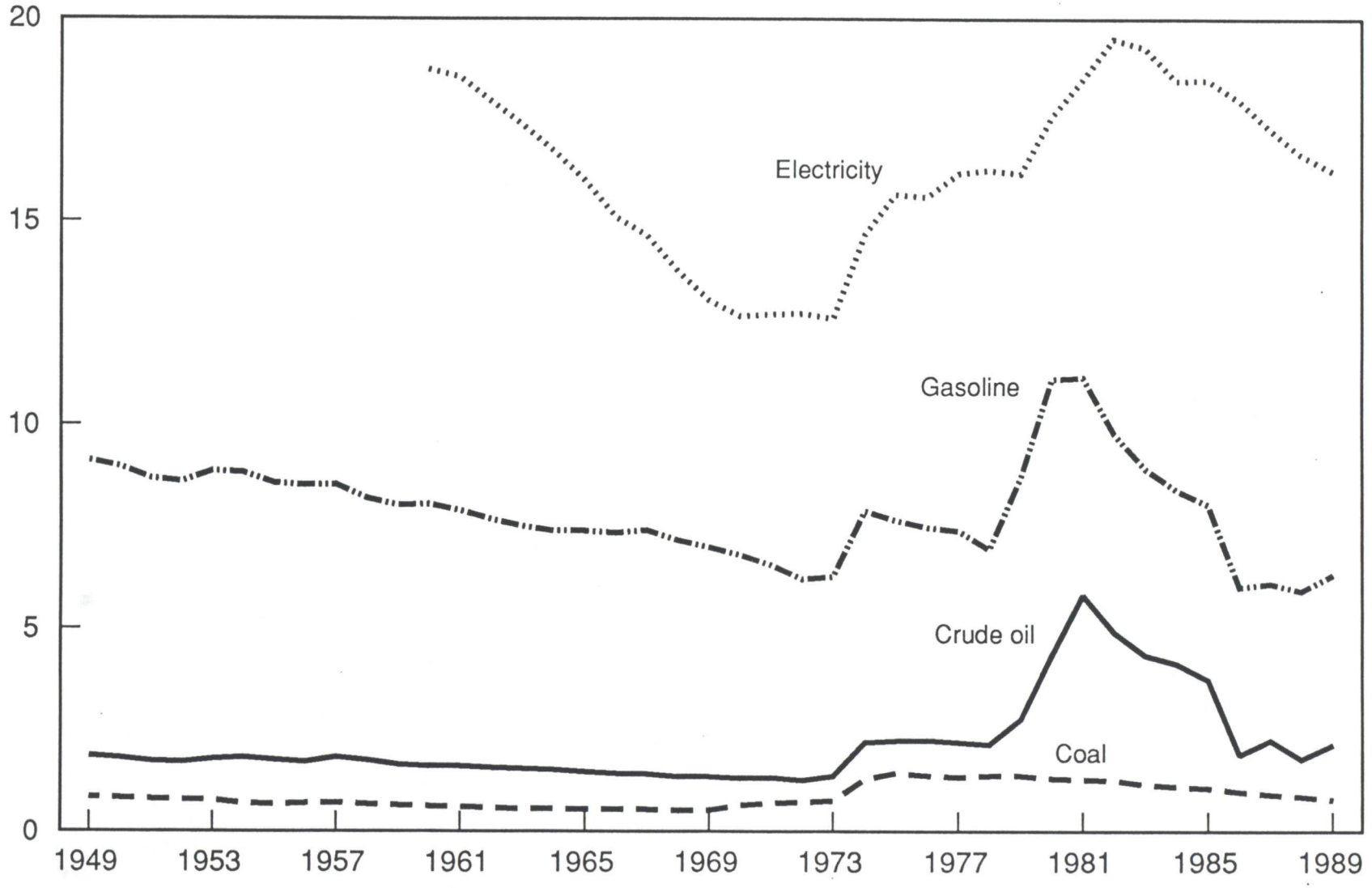
remarkable there a free-market economist to argue that the price of petroleum-based energy will not rise

The available indicators of future oil prices are also mixed. Some factors point to a tightening market in the medium or long run. OPEC, whose member states currently account for about one-third of world production and about three-fourths of proven reserves, will supply a rising share of the world's oil as production in the United States and the Soviet Union, currently the world's largest oil producer, continues to decline. At the same time, world energy demand could begin to grow rapidly if the rates of increase in energy efficiency observed since 1973 are

Chart 3-5 **Real Energy Prices**

Real energy prices do not show an upward trend.

1982 Dollars per Million BTU Equivalent



not maintained, or if rapidly growing energy use outside the OECD area becomes a predominant factor in the world market.

Other factors, however, suggest a future in which oil prices, adjusted for inflation, rise slowly, if at all. The growth in the world's proven oil reserves, resulting from exploration stimulated by higher oil prices following prior oil shocks, has far outstripped the growth in oil consumption. Since 1973, world oil reserves rose by more than 50 percent while world consumption rose by less than 20 percent. At current consumption rates, the world now has a about 44-year supply of proven reserves, as compared to a 30-year supply in 1973. Oil-exporting countries with large reserves recognize that high oil prices encourage substitution towards other existing forms of energy and accelerate the development of new energy and end-use technologies. Moreover, economic and environmental factors that favor the substitution from oil to natural gas, a clean fuel with widely dispersed sources of supply, should also help to keep oil prices low.

reportedly quite limited in
low cost supplies

The considerable uncertainty surrounding future energy market developments suggests the value of policies that are flexible enough to serve national interests under a wide variety of energy market conditions. For this reason, reliance on flexible, competitive, markets is the cornerstone of the National

Energy Strategy (NES) developed by the Administration over the last 18 months. The NES accordingly places primary emphasis on reform of existing regulatory regimes and adoption of other policies that strengthen, rather than supplant, market forces. But the NES also recognizes that energy security concerns must be addressed, along with the environmental consequences of energy use. [NOTE: All references to the NES will be replaced with general references to Administration principles if NES is not released by publication date.]

The NES calls for removal of barriers to efficient conservation and seeks diversification of the nation's energy supplies. It addresses the full range of energy options including coal, domestic and imported oil, natural gas, nuclear power, and renewable energy technologies, including solar. While the ultimate impact of the individual NES elements necessarily depends on future market and technological developments, we can have a high degree of confidence that the package as a whole will significantly advance our economic, environmental, and energy security interests.

Energy Security

The falling energy intensity of the U.S. economy, and its even more rapidly falling oil intensity, mean that a given oil

price shock has a smaller impact on the economy today than 20 years ago. This, along with recognition of the roles of energy allocation and price control schemes and inappropriate fiscal and monetary policies in magnifying the adverse impacts of prior shocks, must be considered in assessing energy security requirements. The maintenance of strategic petroleum reserves and agreement with other reserve-holding nations on credible policies for their coordinated use can provide both a deterrent to deliberate supply disruptions and an effective offset to disruptions that may occur.

Energy security can also be enhanced by diversifying sources of oil supply. The United States, as a leader in exploration and drilling technology, can play an important role in identifying new supply sources. Efforts in this area should focus on natural gas as well as on oil, since gas development that displaces oil consumption can enhance energy security. The removal of remaining barriers to the development of economically viable domestic energy resources and efficient conservation opportunities can also contribute to energy security.

might want to include a nod toward environmental sensitivity here

It is critical to distinguish between energy security and energy independence. Energy diversification efforts will involve some shift towards domestic energy sources. However, the large scale substitution of high-cost domestic energy for low-

cost imported energy cannot make our economy richer or more productive. It simply makes no sense to spend large sums to displace imported energy when supply diversification or strategic reserves can provide comparable energy security benefits at lower cost.

The desire to insulate the domestic economy from changing world prices is often cited as a reason to eliminate dependence on energy imports. However, independence provides such insulation only if domestic prices are somehow kept completely above the world market price level. Otherwise, changes in world market conditions will affect domestic prices, a fact amply illustrated by the lack of insulation from world agricultural market prices provided by our current "grain independence." Thus, independence achieves insulation only when it permanently imposes conditions more onerous than the temporary shocks that it is ostensibly designed to avoid.

Removing Barriers to Market Forces

There are a number of ways in which Federal actions can promote efficiency and competition in energy markets. Reform of the Public Utilities Holding Company Act (PUCHA), which inhibits entry and limits competition among electric utilities, is one

attractive option. The efficiency of natural gas markets is also hampered by Federal regulation. Currently, new gas pipelines require the approval of the Federal Energy Regulatory Commission (FERC) which also regulates rates charged for the transmission of gas. The pipeline approval process should focus on environmental and safety factors rather than the economic and competitiveness considerations that enter into present FERC proceedings. Regulation of pipeline rates, while necessary to prevent monopoly abuses, should be done in a way that fosters economic efficiency.

Electricity Markets

Electricity markets present particular challenges to the introduction of market forces. Electricity is supplied by monopolies regulated at the state level whose profit has traditionally been linked to the amount of electricity sold. This has discouraged them from assisting their customers in pursuing opportunities for conservation.

Integrated Resource Planning (IRP) seeks to exploit opportunities to meet expanding customer needs through cost-effective investments in energy efficiency rather than increased generation. Utilities can play a valuable role in overcoming unwarranted skepticism regarding energy-saving technology by providing credible information to customers. They can also

support programs in which independent energy service experts implement energy efficiency improvements at major customer facilities in exchange for a share of the resulting savings on the electric bill.

Explicit utility subsidization of conservation investments is an entirely different matter. In most cases, the price of electricity itself provides a sufficient conservation incentive. Subsidization makes sense only to the extent that the retail price of electricity is less than its cost of production at the utility's most expensive capacity--as sometimes occurs since rates are based on the average cost of providing electricity. A system that requires utilities to subsidize conservation investments at customer facilities up to the cost of new generating capacity does not meet this test.

Such a program, by offering a double payment of both a subsidy and electricity bill savings for conservation, can encourage conservation investments whose cost significantly exceeds the cost of supplying electricity from new capacity. The utility may save the difference between the cost of new capacity and the cost of the conservation subsidy, but it also loses revenue from the subsidized conserver's reduced demand -- resulting in a net loss that must be made up by raising rates for other customers. Such misdirected incentives raise rather than

lower the total cost of balancing supply and demand for electricity, which includes both generation and conservation costs. Utilities should not be encouraged to adopt IRP programs of this type.

Energy Research and Development

The likelihood that the private firms will underinvest in research due to their inability to fully appropriate the total returns to their successful research efforts and the social interest in the widespread sharing of research results justifies public support of research and development activities. (See Chapter 1.) Government's role is to support basic, precompetitive research rather than to pick winners and losers. Premature Government commitment to a selected technology can foreclose the development of other, more attractive alternatives or the possibility of a diversified set of technologies suited to specific applications or regional markets.

The lack of a clear yardstick for measuring technological promise or valuing research progress presents a challenge for both the initial allocation of research resources and the assessment of ongoing programs. A policy that supported only technologies whose commercial viability was imminent might produce an impressive batting average without making any real

contribution to technological advancement. Yet, there must be some reliance on market signals in order to avoid permanent commitments to technological dead-ends. One promising approach to balancing these two competing concerns is to rely on government/industry consortia in which industry supplies a major share of funding and plays a major role in setting the research agenda.

Increased Fuel Economy Standards

The NES does not advocate increased fuel economy standards. The goal of energy policy is to enhance prospects for economic growth while meeting legitimate energy security and environmental concerns, not to minimize energy use. In the absence of demonstrated market barriers, tighter direct regulation of energy use in individual products is rarely an attractive policy.

Unlike regulatory reform, tighter energy use standards for cars would limit flexibility and choice. In choosing among various models of cars, consumers value performance features as well as energy efficiency. Indeed, absent such preferences it is difficult to explain the popularity of optional powerful engines that add considerably to both the purchase price and operating cost of new cars.

damning or reflective of consumers not being faced with true costs?

At present, average new car fuel economy in the United States, the only country with mandatory fuel economy standards, is very close to the average level in Germany and Japan. It is sometimes argued that tighter U.S. fuel economy standards are justified by the irrationality of private decisions that do not minimize the overall costs of vehicle purchase and operation. Yet, differences among directly competitive models in the total costs of ownership and operation are dominated by factors other than fuel economy -- a point that has not sparked calls for government regulation of vehicle durability, reliability, or prices. The fact that differences in total cost among competing brands can be found for almost every type of consumer product suggests that the definition of irrationality or the costing methodology rather than consumer decisions may be suspect.

SUMMARY OF ENERGY SECTOR POLICIES

- Strategic oil reserves provide a means of cushioning the effects of temporary supply disruptions. Releases should be coordinated internationally and with other response measures.

- Closure of oil futures markets would impede risk-shifting and price discovery in oil markets with few, if any,

offsetting benefits.

- The long-term trend in energy prices is highly uncertain. Therefore, there is little basis for expensive, long-run commitments whose viability depends on a high-cost energy future.

- Energy security can best be pursued through the accumulation of strategic reserves and diversification of energy supplies. The blind pursuit of energy independence can have significant adverse economic impacts.

SUMMARY AND CONCLUDING COMMENTS

The same principles underlie appropriate policies for energy markets and the economy as a whole. While providing for flexible responses to changing short-run conditions, policy should maintain a clear and consistent focus on long-run objectives. These policies will position the economy to meet the challenge presented by the secular trends and shocks that affect the economy.

For many reasons, the U.S. economy is now better positioned to adapt more readily to an oil price shock than it was in the

past. Perhaps most importantly, energy intensity has declined and now-less-regulated private markets can guide products to their most valued uses.

Large and abrupt increases in oil prices can still adversely affect the macroeconomy. These oil price shocks present policymakers with the prospect of temporarily higher unemployment and inflation rates. Having been through price shocks of this type before, we have the benefit of experience. This experience increases confidence that energy market and economy-wide policies can be relied on to provide the appropriate short-run response to price shocks while maintaining their longer run goals. Well-designed policies can significantly reduce but not entirely eliminate the unfavorable effects of such shocks. In that regard, policy is also better positioned to handle an oil price shock. Having produced a low and steady inflation rate and earned credibility that comes from such performance, the Federal Reserve has preserved for itself the latitude to react flexibly to the recent oil price increase while maintaining its reputation for steadily guiding the economy.

THE WHITE HOUSE

WASHINGTON

December 23, 1991

MEMORANDUM FOR MICHAEL BOSKIN

FROM: ALLAN BROMLEY

SUBJECT: Chapter Five of the 1992 Economic Report

In general, an excellent piece of work as always. Herein the few minor comments.

1. Page 94, second and third sentence. While I agree entirely, many may feel that this estimate is an extreme one.

2. Page 94, end of first paragraph. I would suggest that you include reference here to the budget numbers for R&D on energy efficient technologies.

3. Page 53, line 3. Suggest that this be changed to read as follows: "chlorofluorocarbons (CFCs) probably have no net effect on global surface temperature and raised a number of new scientific questions regarding the nature of chemical reactions in the atmosphere including several important gases." CFCs are indeed still greenhouse gases. It is the chemical reactions between them and ozone and nitrous oxide -- among others -- that is at issue.

4. Page 52, penultimate line. Suggest that this should read: "The question of how much several of the gases contribute to the greenhouse effect also remains uncertain; this is ------."

cc: Phil Brady

"Document Control"

TYPE: ACTION
ORIGINATOR: 02
DOCUMENT NUMBER: 9125175
STATUS I
DIRECTORATE STATUS

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FROM: BOSKIN, Michael J.: COUNCIL OF ECONOMIC ADVISERS

TO: DR. D.A. BROMLEY

DATE OF CORRESPONDENCE: 12/19/91

SUBJECT: HE REQUESTS COMMENTS ON THE PRELIMINARY STAFF DRAFT OF CHAPTER FIVE OF THE 1992 ECONOMIC REPORT OF THE PRESIDENT.

****

DIRECTORATE ASSIGNED: Dr. Wong

STAFF ASSIGNED:

I have no comments, but Nancy M. should read section on "Environment".

EW 12/21

ACTION REQUIRED: COMMENT TO DAB

STAFF ACTION:

****

SENDER'S DUE DATE: 12/23/91

OSTP DUE DATE: 12/23/91

STAFF DUE D

DATE COMPLETED:

DATE COMPLETED/D

****

COPIES TO: D. Allan Bromley

****

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

PHONE:

EXT:

I suggest DAB take a look at pp 52, 53, -54. There are several errors and a slight "tone" problem which don't serve the report well.

12/23

N. Mayard

OSTP RECEIVED: 12/20/91
FILE: P-INDUSTRIAL-ECONOM]

CENTRAL FILES:

Document No. 294320

CLOSE HOLD

WHITE HOUSE STAFFING MEMORANDUM

DATE: 12/19/91 ACTION/CONCURRENCE/COMMENT DUE BY: C.O.B. Monday 12/23/91

SUBJECT: 1992 ECONOMIC REPORT OF THE PRESIDENT, Chapter 5 -- COMPETITIVE FORCES AND REGULATION

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☑	HORNER	☐	☐
SKINNER	☐	☑	MCCLURE	☑	☐
SCOWCROFT	☑	☐	PETERSMEYER	☐	☐
DARMAN	☑	☐	PORTER	☑	☐
BRADY	☐	☑	ROGICH	☐	☐
BROMLEY	☑	☐	SMITH	☐	☐
CARD	☐	☑	BROADMAN, Harry	☐	☑
DEMAREST	☑	☐		☐	☐
FITZWATER	☐	☑		☐	☐
GRAY	☑	☐		☐	☐
HOLIDAY	☑	☐		☐	☐

REMARKS: Please provide any comments directly to Harry Broadman, Rm. 314, by close of business on Monday, 12/23, with a copy to this office. Thanks.

RESPONSE:

CLOSE HOLD

PHILLIP D. BRADY
Assistant to the President
and Staff Secretary
Ext. 2702

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON, D.C. 20500

THE CHAIRMAN

December 19, 1991

MEMORANDUM FOR DISTRIBUTION BELOW

FROM: MICHAEL J. BOSKIN

SUBJECT: 1992 Economic Report of the President
Chapter 5 -- Competitive Forces and Regulation

Attached is a preliminary staff draft of Chapter 5 of the 1992 Economic Report of the President. Please let us have your comments in memo form by Monday, December 23. CEA welcomes comments and suggestions and finds them extremely helpful in preparation of the Report.

Comments should be delivered to the attention of Harry Broadman, Room 314, Old Executive Office Building.

Please note that the draft is for official use only, should be held close, and should not be copied.

Attachment

White House (Porter, Gardner, Hill)
OMB (Darman, Grady, Hale, Al-Samarrie)
NSC (Scowcroft)
OSTP (Bromley)
USTR (Hills, Moskow, Walters)
CEQ (Deland)
State (Baker, Zoellick, McAllister, Bohlen)
Treasury (Brady, Mulford, Glauber, Wethington, Jones, Hubbard)
Commerce (Mosbacher, Darby, Farren, Obuchowski)
Agriculture (Madigan, Crowder, Gardner)
Defense (Cheney, Wolfowitz, Lilley)
Education (Alexander, Sanders)
Energy (Watkins, Kent, Stuntz)
HHS (Sullivan, Gerry)
HUD (Kemp, Weicher, Humbert, Woodward)
Justice (Barr, Rill)
Labor (Martin, DeArment, Norwood)
Transportation (Murphy)
Federal Reserve (Greenspan, Prell, Truman, Kohn)
CIA (Gates)
CFTC (Gramm)
FDA (Kessler)
EPA (Morgenstern)

CHAPTER 5

COMPETITIVE FORCES AND REGULATION

Government at all levels affects economic activity through such mechanisms as taxes, law enforcement, and the construction of roads and highways. Regulation, however, generally refers to legislation or rules developed by government agencies that alter the way private companies conduct their operations or that mandate government provision of goods and services. "Economic" regulation takes many different forms and includes regulating prices and limiting the extent of competition in an industry, such as by establishing a single local telephone company with regulated rates. The government also attempts to protect safety, health, and the environment through "social" regulation.

While the intentions of many regulations are laudable, they can have unintended adverse impacts on the general public. For example, oil price controls and allocation schemes, begun in 1971 and abandoned in 1981, exacerbated the effects of the two energy crises by creating gasoline lines and spot shortages. During the conflict in the Gulf, the short-lived price spike reflected the potential scarcity of oil created by the war. The higher prices encouraged consumers to reduce their gasoline use, avoiding the