THE NEXT OIL SHOCK-

George Horwich and David Leo Weimer

To Americans, the world energy picture provides both good news and bad news. Petroleum prices have declined over the last two years in both nominal and real terms; U.S. petroleum imports are at a ten-year low because we are producing more petroleum than we did in the 1970s and using less; and the worldwide unused crude-oil production capacity of 10 million barrels a day suggests that prices may continue downward. For the next few years, it looks as if the world oil market can absorb a wide range of supply interruptions with only moderate effects on price. So much for the good news.

The bad news is that a cutoff of supplies from the Persian Gulf, or even the threat of one, could cause price increases and other economic costs comparable to those that occurred during the Iranian revolution. The gulf region is currently producing 10 million barrels of crude oil a day, equal to 20 percent of the world's supply, and holds 70 percent of the world's unused production capacity. A cutoff here would *not* represent a drop in the bucket.

Once a disruption has begun, the only steps the government can take to reduce the costs are those that have been planned ahead of time. In the absence of such planning, the most likely U.S. reaction would be a return to price controls and allocations. This prediction may seem strange, since almost all who have studied the petroleum price regulations of the 1970s have concluded they were an unmitigated disaster—an opinion the White House shares. Nearly everyone in these circles recognizes that price controls and allocations, even if administered perfectly, would raise the costs of a disruption. But congressional and popular support for standby controls, from Democrats and Republicans alike, remain strong. The coalition is the same one that almost overrode the President's veto of the 1982 standby allocation bill and, a few months before that, overwhelmingly defeated a rival bill prescribing a market response to energy emergencies.

The irony and the reality of our time is that an essentially free-market response to an oil-supply disruption is likely to prevail *only* if it is preceded by substantial government preparations. The most important preparation would be to improve the readiness of the strategic petroleum reserve (SPR), especially by accelerating its fill rate and working out a scheme to ensure its timely use, while setting up an emergency program to subsidize very low-income families and providers of emergency services. Without such preplanning, Con-

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GIVING THE MARKET A CHANCE

gress will all but inevitably return us to counterproductive petroleum regulations during the next serious disruption.

The Costs of Disruption

A 50-percent reduction in world oil supplies, resulting perhaps from an expansion of the Iran-Iraq war into Kuwait or Saudi Arabia, could cause the world price of oil to double. The direct cost of this to the U.S. economy would be approximately $50 billion a year, with the losses falling into three categories: First, the United States would have to pay more for the petroleum it continues to import, so that dollars previously used to buy domestic goods and services would go to foreign oil producers instead. Second, less petroleum would be available here to produce the goods and services that consumers value. Third, resources previously used to produce other goods and services would be diverted to increased domestic energy production. These losses translate into reductions in the level of real GNP and in the share of GNP accruing to U.S. consumers.

In addition to the direct costs, there would be the indirect or adjustment costs incurred in the transition from before to after. Adjustment costs would be disproportionate to the size of the price shock—a shock twice as large will more than double the adjustment costs—and they would probably equal or exceed the direct cost of the disruption. The economy would undergo a restructuring of final product prices occasioned, on the supply side, by the rise in the price of oil and alternative energy sources and, on the demand side, by the accompanying change in income distribution and by the drop in demand for energy-intensive goods such as automobiles. In the short run, because prices are more flexible upward than downward, output would fall in contracting markets with little fall in price, and prices would rise in expanding markets with little rise in output. On balance, total output would be down, average product price up, and social surplus lower.

With all this, there is still the adjustment cost that President Carter's Council of Economic Advisers (CEA) considered the most serious, actually justifying the use of price controls and allocations. We are referring to oil price drag, a sudden overwhelming shift of spending away from other markets and into petroleum products (whose demand elasticity is very low in the short run). Our own estimates of the drag for the 1973–74 and 1979–80 disruptions show it to be much less important than the CEA thought. It is potentially large enough, however, to warrant an easing of monetary policy, both to offset the drag and to facilitate the movement of resources during the adjustment process.

But monetary ease was not what we got in the previous disruptions. Instead, the Federal Reserve and other major central banks actually tightened the money supply—unable, apparently, to distinguish between supply-induced inflation, which is created by oil or other commodity price shocks and which monetary policy should accommodate, and demand-pull inflation, for which monetary tightness is an appropriate offset. It is fair to ask which group, the Organization of Petroleum Exporting Countries (OPEC) or the domestic central banks, shaved more from real GNP in the industrial democracies in the 1970s.

Market Forces: A Case in Point

In the event of a disruption, markets should be left alone, apart from the stabilizing measures we propose below. Market forces—if unimpeded—will direct resources to their most efficient uses, thereby minimizing the loss of GNP and employment. The efficiency results from the fact that key decisions will be made by individuals who are intimately involved in consumption and production, and who possess both the fullest information about petroleum's most-valued uses and the strongest motivation for moving resources to them.

Of course, as shown in the 1979 oil price shock, oil markets will adjust even if they are constrained by price ceilings. But the costs of doing so, which take the form of searching, queuing, and greater uncertainty of supply, will be high. In 1979 motorists adjusted in ways that were dramatic and often unpredicted. Surveys conducted by and for the New York State Department of Transportation reveal that the total reported saving of gasoline in that state during 1979 was 6 percent of normal consumption, the size of the shortfall. Some 44 percent of the gasoline saved was attributed to the shift to more fuel-efficient cars, more frequent tune-ups, and other car-related actions; 23 percent was accounted for by work-related responses, including increased use of mass transit and car-pooling; 17 percent was reportedly due to altered shopping patterns; 13 percent to cancellation or modification of vacation trips; and 4 percent to reduction of the distance between job and home.

The pattern of economizing varied significantly over time, demographic and income groups, and regions of the state. Ninety days after the disruption had begun, reduced travel accounted for 46 percent of the fuel saving; one year after, respondents attributed only 15 percent of their savings to traveling less. Improved fuel efficiency in the automobile fleet achieved 11 percent of the saving after ninety days, and 42 percent after one year. Increased use of mass transit, largely for work-related trips, accounted for 31 percent of New York City's savings, compared to only 4 percent of the savings upstate, where 45 percent of the total state conservation effort took place. Households with more than two cars are credited with an amazing half of the total gasoline conservation that was accomplished in New York State in 1979.

Research at the Energy Productivity Center of the Mellon Institute suggests that the New York findings can be generalized to the national economy as a whole. After an exhaustive study, the center concluded that the final goods and services in the late 1970s GNP could be produced with 22 percent less energy. For example, we could achieve the same degree of warmth and cooling by using more building insulation and less fuel, and the same degree of mobility by using more fuel-efficient automobiles. While the study was directed at longer-run opportunities for improved energy efficiency, its findings are relevant to emergency planning since they rely wholly on known technologies.

Government Controls: Several Cases in Point

Price ceilings on crude oil and on petroleum products were originally part of the wage and price control program imposed by the Nixon administration in August 1971. They outlived it, however—lasting until January 1981—because they were popularly viewed as ways to prevent domestic oil companies from sharing in OPEC's ill-gotten gains and to reduce the hardships that higher oil prices would impose on low- and middle-income consumers. Those price ceilings, and the "entitlements" system that went along with them, were costly to the U.S. economy. And the greater the petroleum price-shocks they were supposed to deal with, the more costly they were.

Crude Oil Controls. The price and allocation rules made matters worse in two ways. First, the price ceilings discouraged domestic oil production as well as exploration and development for future production, while stimulating higher levels of consumption that could only be met with additional imports. Second, the entitlements system, which more or less equalized the price of crude oil for all refiners (at the average of the domestic and foreign price), made higher imports inevitable by forcing domestic oil to subsidize imported oil. Joseph Kalt has estimated the rise in imports at an average of 2 million barrels a day, roughly one-third more than had previously been imported. Because

the United States is a major consumer in the world market, the surge in U.S. import demand drove up the world crude oil price. Thus, although controls held petroleum product prices here somewhat below generally prevailing world levels, it is unlikely that U.S. product prices were significantly lower than they would have been in the absence of the crude oil price ceilings.

Because unsatisfied demand could be filled by imports, there was no shortage of crude oil. Nevertheless, the energy regulators adopted three kinds of mandatory allocations of crude oil—the entitlements system, the buy-sell program, and the supplier/purchaser freeze. All of these allocation programs, plus the exceptions relief process that was built into the system, imposed losses in efficiency on the U.S. economy above those due to the price controls.

The entitlements program spread the benefits of low-cost domestic crude among all U.S. refiners, but provided a disproportionate benefit to small refineries. In 1978 the average 10,000-barrel-a-day refinery received an annual subsidy of up to $6.9 million, or 19 percent of the costs of building that refinery. In 1980, the subsidy was $22.9 million, or 55 percent of the initial investment. Refineries whose capacity was under 50,000 barrels a day tended to be inefficient, unless they served a highly specialized product or geographic market. Moreover, they were more likely to produce heavy products, such as residual fuel oil, than lighter, more highly valued products, such as gasoline.

Kalt has estimated the efficiency loss from the crude-oil price controls and entitlements at $2.5 billion a year in 1980 prices. More than two-thirds of the loss came from the curtailment in domestic production and slightly less than one-third from the increased purchase of imports (through entitlements) at prices above their value to consumers.

The buy/sell program required the fifteen largest refiners whose ratios of crude oil to refining capacity exceeded that of the national average to sell to small refiners with ratios below the national average. The sales were to be made at the average purchase price of oil during the previous quarter, a price that would of course be below marginal cost in periods of rising prices. "Buy/sell" was thus a subsidy from the firms that had the foresight to ensure against crude oil supply losses to those that did not. It distorted incentives by discouraging companies from stockpiling or making other provision for emergency. It also tended to exacerbate shortages in gasoline and other lighter refinery output, since these products were generally outside the productive capability of the small refineries that were receiving the subsidies.

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The supplier/purchaser freeze, the most pervasive of the direct allocation rules, required all nonretail sellers of crude oil and petroleum products to continue selling the same percentage of their supplies to each buyer as they had sold in the corresponding month of 1972. Even if it had been well considered on other grounds, such a rule would quickly become outmoded, since industrial processes, consumer tastes, and demographics change so rapidly. The effect of the oil shock itself was to make the rule outmoded even before it was in place. As the New York study showed, consumption patterns in travel shifted massively over a period of months in reaction to the shock. Moreover, petroleum use will generally fall by more in heating or cooling, where there are more good substitute fuels, than in transportation.

The freeze did several other kinds of damage. It gave buyers an incentive to remain with their historical suppliers and, with an eye to future updating of the base period, to buy more oil than they would have otherwise. At the same time, since the base period quantities would be zero, it kept existing suppliers from entering new markets and new suppliers from entering at all (except by special authorization). All suppliers were discouraged from accepting new customers, because an otherwise casual transaction could, in a later updating of the base period, be converted into a long-term commitment.

The base period was in fact still 1972 when the spring 1979 disruption struck. The allocators hastily moved the base to the corresponding month of 1978, but allowed exceptions that

kept the allocations from accurately reflecting the seasonal consumption pattern. This distortion resulted in severe shortages in vacation and resort areas in the summer of 1979. It apparently was beyond the allocators' ingenuity to devise a system that took account of the fact that people go different places in winter and summer.

Exceptions relief might in principle have reduced the many sorts of perverse results that the three types of allocations caused. Under this process, exceptions designed to alleviate "extreme hardship" and "gross inequity" were granted by the appeals offices of first the Federal Energy Administration and then the Department of Energy (DOE). But in practice the process led to a fourth kind of allocation by evolving into a kind of guarantor of the survival of eligible firms. To put it in a nutshell, the exceptions process transferred petroleum (usually at below-market prices) or claims to petroleum (via entitlements) from large or successful firms to small or less successful ones, which almost certainly were also less efficient.

Exceptions relief led to results that many would regard as inequitable as well. The sums that it redistributed were enormous—on the order of tens of millions of dollars. The recipients, as a rule, were highly affluent investors who often received funds siphoned from the larger companies to cover the losses of financially questionable projects in both petroleum and nonpetroleum industries. Among the latter investments were a ski resort, a hotel, an insurance company, and conglomerates of various kinds. The failure of many of these enterprises became the basis for further claims for assistance under exceptions relief. And—just to put the icing on the cake—the appeals process, because of the sheer magnitude of requests, was run loosely on the basis of the "assumed accuracy" of unaudited information provided by the companies themselves. While drivers were queuing for below-market gasoline at the pump, businesses were queuing for below-market crude oil in Congress, the Department of Energy, and wherever else their special pleading received a sympathetic hearing.

Petroleum Product Controls. Like crude oil, petroleum products were subject to both price and allocation controls. The price ceilings allowed crude oil costs to be passed through to product prices monthly and most other costs to be passed through more gradually. But profit margins were fixed and were adjusted upward infrequently and only on an across-the-board basis. Since temporary increases and decreases in profit margins, as a result of price changes, are the driving force of market allocation, the price ceilings effectively destroyed the ability of markets to respond to changes in the geographical and use patterns of supply and demand. This was particularly true during disruptions, when ceilings on petroleum product prices (even though they incorporated higher crude oil and other costs) fell well below market-clearing prices because of the constraints on profit margins.

The mechanism for allocating petroleum products at the nonretail level was the supplier/purchaser freeze modified by designation of various classes of priority users, a special set-aside of supplies for allocation by the state governments, and exceptions relief. These procedures provided a semblance of order, if not efficiency, to the fuel distribution system. At the *retail* level, however, consumers and their suppliers were left to their own devices. In the absence of freely determined prices, supply and demand were brought together in two ways:

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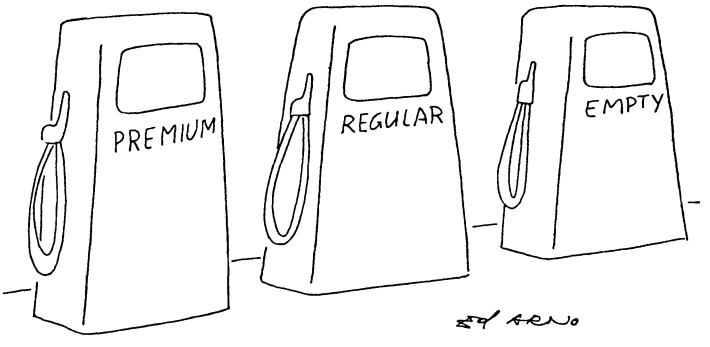

- In the very short run, buyers of products such as gasoline incurred search and queuing costs—remember the gas lines—while sellers limited individual purchases, favored established customers, and so on. The rise in these noncash costs, which can readily exceed market-clearing prices, drove some buyers into substitutes such as walking, carpooling, or taking the bus.
- Both in the short and the longer run, sellers tried to lower their costs of providing

the product by reducing its quality. Gas stations, for example, began widespread evening and weekend closings; and checking under the hood and cleaning windshields became relics of the past. In the longer run, evening and weekend closings continued to some extent, while service came to be charged for separately as self-service stations arose.

Both mechanisms, the rise in noncash costs and the decline in quality, entailed a loss of consumer satisfaction. The popular belief that price ceilings on petroleum products limited inflation ignores this loss. It also ignores the increase in prices of uncontrolled substitute commodities, increases that are larger than they would be in the absence of controls.

Summing Up. Was equity served by the petroleum price controls and allocations? The regulations reduced the efficiency of petroleum markets and prevented oil from going to uses where it would have maximized GNP, thereby lowering output and employment more than if the market had been left alone. The burden of this contraction almost certainly fell disproportionately on low-income individuals. The shift from cash to noncash payment is sometimes said to benefit the poor, but there is not the slightest evidence that frenetic ad hoc scrambling for products—which, remember, took place at more than just the gas-station level—benefited the poor rather than the affluent and politically well connected. Among those that got special preference were such politically powerful groups as independent refiners, various other segments of the petroleum industry, farmers, truckers, as well as several of the wealthiest states. It is unlikely that these groups would qualify for anyone's list of the neediest cases.

Where Do We Go from Here?

Only two of the emergency response programs developed in the 1970s are still in force. One is the mandatory sharing program of the International Energy Agency (IEA) and the other is the U.S. strategic petroleum reserve.

The IEA Sharing Program. Formed in 1975 by the countries of the Organization for Economic Cooperation and Development (not including France), the IEA offers a forum for cooperative responses to world oil-supply disruptions. Foremost among the IEA articles of agreement is a mandatory sharing of oil supplies, aimed originally at neutralizing a targeted embargo against one state—as against the United States and the Netherlands in 1973–74. Petroleum supplies are shared according to a complex formula that roughly leaves each country with an oil supply proportional to its total petroleum consumption.

The agreement is ambiguous on price, suggesting that prices should reflect "comparable commercial transactions," but leaving the actual determination of price to the Secretariat of the IEA. It is thus possible, and indeed desirable from the viewpoint of many member countries, that sharing be mandated at below-market prices. In fact, it is unlikely that any country would choose to exercise its buying right under the agreement if the price were not below the world level. The overwhelming evidence is that the world tanker market rapidly distributes supplies so as to meet the effective demand of all countries at a common price (apart from differences in transportation costs). This occurs in response to a targeted embargo or any world supply disruption, which, in the first instance will affect countries differently.

For the above reasons, the agreement is at best superfluous. It is also, however, potentially harmful. Since the United States imports little oil from the Persian Gulf, we would be a donor under the sharing program if, in the immediate aftermath of a Gulf cutoff, sharing were implemented. In principle, the United States could meet its obligation without sacrificing its commitment to market processes. The procedure would be for U.S. companies to divert a portion of their overseas oil supplies to recipient IEA countries at prevailing spot-market prices; and then the Department of Energy would replace those company supplies at the same prices by drawing down SPR oil. Unfortunately, the Department of Energy considers this approach only one of several options. The other major alternative is to request "voluntary" offers of supplies from domestic companies, while implementing some kind of "fair sharing" to ensure broad industry participation. This alternative does not specify the price at which sharing would be carried out, and DOE gives every indication of relying on

moral suasion if not outright coercion, both being operationally indistinguishable from mandatory allocation. Moreover, once mandatory IEA sharing began, domestic allocation would be certain to spread as interest groups petitioned for treatment at least as favorable as that of the foreign beneficiaries.

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The Use of the SPR

International oil sharing is clearly a scheme of dubious merit. A far better way to counter an oil price shock is to rely on previously stockpiled oil. Doing so would lower the world price of oil just as effectively as if the oil had come from any other source—private or foreign stocks, new production, or supplies released by conservation measures. Since the costs of a disruption rise more than in proportion to its size, replacing even a fraction of lost supply from stocks can be of substantial economic benefit. Moreover, the benefits from drawdowns would likely be greatest at the onset of the disruption, before consumers and producers have had time to adjust fully to the higher petroleum prices (as the discussion of the New York case would suggest).

In lessening the cost of a disruption, stockpile release would have other beneficial effects that are harder to quantify. It would (1) broaden foreign policy options by delaying the full impact of an interruption, (2) improve military flexibility by reducing the cost to the United States and its allies of any damage they might have to inflict on foreign oil-producing facilities, and (3) deter oil producer embargoes, since embargoes would be less effective. Drawdowns would also lessen the political panic that could lead so readily to price controls and allocations.

But accumulating stockpiles costs money. The oil must be purchased and stored; moreover, the purchases would drive up the price of oil and therefore the cost of imports. The optimal stockpile size at any given time would be determined by comparing these costs against the benefits of drawdowns, taking into account uncertainty about the timing, severity, and length of future disruptions.

It might be objected that profit-maximizing private firms would themselves already be stockpiling oil at the optimal level. But there are three reasons why private speculative stocks are likely to be too small. First, firms do not bear the full costs or receive the full benefits of their stockpiling decisions. For example, in a disruption, drawdowns can bring large price reductions and other benefits to society that far exceed the benefits to the individual firm. Second, and probably more important, firms must anticipate the possibility that the government will prevent them from reaping what will be called windfall profits on their stockpiled oil, as it did in the 1970s. If their selling price cannot be expected to rise in an emergency, there is little reason to stockpile even if the emergency looks quite likely. Third, firms may simply be risk-averse, leading them to avoid speculative stockpiling. We should note that a standard tenet of welfare economics is that in the long run welfare will be maximized if social decision making is risk-neutral.

Improving the Stockpiling System

Congress mandated the development of a strategic petroleum reserve in 1975, and since then over 390 million barrels of oil have been stockpiled in Louisiana and Texas. But a reserve of at least twice this size would be appropriate. A large number of benefit-cost studies have, almost without exception, found that the optimal reserve size is greater than 750 million barrels, and generally more than 1 billion barrels. Of greater relevance to current policy, the studies that have looked at the timing of reserve development have concluded that the schedule should be accelerated.

Even the schedule as currently planned is unlikely to be met. Both the Carter and Reagan administrations have supported the SPR more with words than with funding. In 1977 President Carter proposed a goal of 1 billion barrels in storage by the end of 1985, and Congress approved his plan a year later. Between then

and 1980, however, the Office of Management and Budget (OMB) succeeded in preventing funding to build more than 500 million barrels of storage capacity. Because the construction of salt dome capacity requires a long lead time, these cuts made the new SPR goal unattainable. Furthermore, the Carter administration stopped filling the reserve during the 1979 disruption, and only resumed it the next year after Congress threatened to stop sales of Naval Petroleum Reserve oil. When the Reagan administration took office, it set a goal of 750 million barrels in storage and, to this end, it sought funds to speed up the acquisition rate and build the needed capacity. But, once again, OMB managed to delay the funds, and ultimately Congress pressed the administration to accept an accelerated acquisition schedule.

Why is the SPR so vulnerable to budget cutting? The chief reason is that, while an adequate SPR offers large expected net benefits, its costs come before its benefits. Moreover, it has no natural constituency. That is, instead of providing immediate gains to narrowly defined groups, it provides insurance against widely distributed economic losses that may or may not occur some time in the future. Delays in funding for facilities that take four or five years to complete may not even come to the attention of those outside of government who support the program. So by cutting the SPR budget, politicians can reduce expenditures without generating immediate political costs.

The solution to this problem, in our view, is to finance the SPR in a way that insulates it from short-run budget considerations. At the same time we strongly advocate adoption of mechanisms that will increase the likelihood the SPR will be used at the onset of emergencies. Although the economic benefits from SPR use are almost invariably greatest at the beginning, the natural tendency of decision makers will be to delay drawdown to protect against a worsening of the disruption—avoiding "crying wolf" when only a small wolf is at the door. We propose two measures to make the funding and drawdown of the SPR automatic, and a third to answer claims that a market response is somehow unfair.

(1) An Earmarked Petroleum Import Fee. A $2 a barrel import fee should be imposed on all imported petroleum, with the revenues earmarked for the SPR program until official stockpiling goals are reached. Once the goals are met, the fee revenues should revert to the general treasury. This arrangement would encourage OMB's budget analysts to look for ways to improve the SPR program, not to delay it.

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Funds would automatically become available for refilling the SPR in the event that drawdowns reduced stocks below mandated levels.

The import fee is also consistent with economic efficiency in the petroleum market. Economists generally agree that the marginal costs to society of imported petroleum exceed its market price. The difference is referred to as the oil import premium and has two components: the higher cost of all imported oil when additional imports raise the world price and the higher social costs of oil price shocks when oil import levels are higher. Although there is wide disagreement over the size of this import premium, almost all estimates are above $2 a barrel. The import fee would thus to some degree close the gap between the marginal social cost of oil and the market price.

The import fee meets an equity test as well. Because the SPR's benefits will be distributed roughly in proportion to petroleum use, it seems reasonable to fund the program with a fee that distributes costs in much the same way. The fee would also put some additional downward pressure on world petroleum prices, increase the "take" of the oil windfall profit tax, and stimulate domestic oil production by raising domestic oil prices.

(2) Regular Sale of SPR Options. An alternative to asking the White House to make the initial drawdown decision is to let private parties purchase SPR oil on a continuing basis. This could be done by regularly selling options for purchase of SPR oil at specified prices during specified future periods. Firms would be able to bid for the right, for example, to purchase SPR oil between nine and twelve weeks in the

future at a forward price equal to 110 percent of the current market price. The stronger a firm's belief that the future market price will exceed the forward price, the more it will bid for the options. With a disruption-induced increase in the price of oil, firms will find it worthwhile to exercise their options and thereby draw down the SPR. Once price stabilizes (or begins to decline), so that firms no longer find it profitable to exercise options, the government could—though it need not—continue the drawdown through normal auction sales for current delivery.

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A system of SPR options would substitute market expectations for those of the government: the decision to use the reserve would be mainly an economic rather than a political one. The only decision the President would have to make would be whether the SPR should continue to buy oil in the world market once firms had begun to exercise their options. If he believed the drawdown was not desirable, he could order the SPR to continue its regular purchases. If he believed it was a good idea, he could order the SPR to suspend purchases temporarily. Thus the initial drawdown decision would be the market's, with the government making adjustments by changing the fill rate.

Another advantage of the options system is that it would enable the private sector to anticipate SPR drawdowns. This would not only lower the expected future price of oil, but might also lower current spot market prices during disruptions by reducing additions to speculative stocks.

(3) Emergency Transfers. A system of emergency transfer payments would be a desirable complement to the above proposals, in order to mitigate some of the distributional consequences of market allocation. During an oil shock, there will be a relatively small number of consumers, those that have both low income and considerable difficulty in reducing their short-run consumption of petroleum products, who are likely to suffer real hardship. Also, local governments may have temporary difficulty providing public services, while enterprises that cannot immediately pass along higher costs to consumers—regulated transport, for example—may face serious short-run liquidity problems. Federal funds, ideally from sales of SPR oil and options, could be distributed to the states during price shocks in order to reduce the severity of these problems and thus to defuse the political pressure for price controls and allocations.

If this aid program is to succeed, it must have clear mechanisms for beginning, ending, and distributing the transfers and must be put in place before a disruption occurs. The way to meet these requirements is to set up a program now to distribute, from the beginning of a disruption, all SPR revenues to the states according to a formula based (preferably) on historical patterns of oil consumption. This program would involve minimal administrative costs at the federal level and maximum flexibility at the state level. It would also create an active constituency of state and local officials who would be better able to serve their jurisdictions if the federal government built a large reserve, actually used it during disruptions, and sold it at market prices—all of which are desirable SPR policies.

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Conclusion

Where does this leave us? It leaves us, if we wish to let the market work in the next oil shock, with the need to set up now the program outlined here—a modest oil import fee to fund the SPR, an options scheme for the purchase of SPR oil, and a plan for emergency aid. There is only one alternative, and that is more controls, more interference in the market, more misallocation, more bureaucracy, and less oil. ■