

## The Enduring Vulnerabilities of Oil Markets

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*In “Protecting ‘The Prize’: Oil and the U.S. National Interest,” Eugene Gholz and Daryl G. Press present an important counterargument to many common but overwrought worries about energy security. Yet they themselves go too far in the opposite direction. Gholz and Press argue that only three types of potential oil market disruptions could induce “particularly painful” adjustments and hence rise to the highest level: consolidation of a large fraction of Persian Gulf reserves under a single power, domestic instability in Saudi Arabia, and blockage of the Strait of Hormuz. I argue in this response that Gholz and Press confine the second and third scenarios too narrowly, and hence understate the security risks stemming from U.S. dependence on oil.*

In “Protecting ‘The Prize’: Oil and the U.S. National Interest,” Eugene Gholz and Daryl G. Press present an important counterargument to many of the overwrought worries about energy security that are common in academic and policymaking circles.<sup>1</sup> Yet they themselves go too far in the opposite direction. Gholz and Press argue that only three types of potential oil market disruptions could induce “particularly painful” adjustments and hence rise to the highest level: consolidation of a large fraction of Persian Gulf reserves under a single power, domestic instability in Saudi Arabia, and blockage of the Strait of Hormuz.

I argue in this response that Gholz and Press confine the second and third scenarios too narrowly. Domestic instability not only in Saudi Arabia but also in medium size producers such as Iran, the United Arab Emirates (UAE), or Iraq may be enough to severely strain global markets. Similarly, disruptions in shipping channels other than the Strait of Hormuz, most notably in the Strait of Malacca, could also exceed the market’s ability to smoothly adapt.

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<sup>1</sup> Eugene Gholz and Daryl G. Press, “Protecting ‘The Prize’: Oil and the U.S. National Interest,” *Security Studies*, 19, no. 3 (August 2010): 453–485.

Underlying my claims are two challenges to the basic model of oil markets advanced by Gholz and Press. First, Gholz and Press argue that spare capacity in the Organization of Petroleum Exporting Countries (OPEC) will almost always be robust and will thus provide a buffer against instability outside Saudi Arabia. I argue that, to the contrary, OPEC spare capacity has been low for most of the past decade and will likely remain so for the indefinite future. Second, Gholz and Press argue that simple route adjustments would allow tankers to circumvent closure of the Strait of Malacca and the South China Sea. I argue that such adjustments could overwhelm the tanker market, possibly resulting in large increases in the price of oil at consuming centers.

### DOMESTIC INSTABILITY AND OPEC SPARE CAPACITY

Gholz and Press argue that Saudi Arabia is the only country in which domestic instability is a threat large enough to significantly strain global oil markets. Their argument relies on a series of assertions about the ability of markets to respond to supply disruptions. They list four sources of resilience that can respond to supply disruptions: increased production from non-OPEC countries; draws from private inventories; draws from government-controlled inventories; and, most importantly, increased production from OPEC countries.

The first of these is, in part by the authors' own admission, quite limited. Gholz and Press write that "non-OPEC countries have only modest amounts of ready-to-pump 'spare capacity,'" but even this may exaggerate the state of affairs. Oil market analysts tend to assume that non-OPEC countries produce at full tilt. Only if oil prices drop substantially do producers shut in production (cease to produce oil from existing infrastructure); in that case, production can sometimes be restarted on relatively short notice, since the capital stock required to surge production is already in place. Yet at current and projected oil prices, essentially all existing capital stock is engaged in producing oil; new production capacity would require large sums of investment, which would in turn require both time and a belief that higher prices were not simply temporary. In short, one cannot count on a meaningful short-term non-OPEC production response to an oil price shock.

The authors also point to private inventories, which, they correctly note, can serve as "suppliers who pump oil out of storage tanks rather than out of geologically determined underground reservoirs" in times of stress. But, as they also note, "if buyers expect conditions to worsen after an initial shock, they may react by increasing their holdings or hoarding, rather than by selling from inventory. Consequently, global demand for oil may sometimes increase in the middle of a crisis, sharply driving up prices." Private inventories may provide fortuitous relief from a shock, but the possibility that they might actually do the opposite suggests that they should not be relied on.

The third source of resilience—government controlled inventories—is more significant. Gholz and Press note that such inventories contain roughly

1.4 billion barrels of oil. This could, for example, replace all current Iranian production for roughly one year. Yet as such strategic reserves were drawn down, pressure on prices would increase, both because markets might begin to worry that reserves would be exhausted, and because markets would anticipate that reserves would need to be replenished, which would eventually increase demand. It is possible that a combination of Saudi spare capacity and government reserves could allow the world to ride out disruptions in one or more medium-sized oil producing countries. But national security planners can be far from confident that this would be the case.

This leads to the fourth factor that Gholz and Press highlight: spare capacity in OPEC, and, in particular, in Saudi Arabia. Though they do not say it, the fact that most spare capacity is located in Saudi Arabia is an important reason why disruptions in medium-sized producers would be less consequential than ones in Saudi Arabia itself. Ultimately, their comfort with the possibility of unrest in medium-sized oil producers rests on the claim that related oil disruptions will be compensated for substantially by the release of Saudi spare capacity and, to a lesser extent, spare capacity elsewhere in OPEC. I argue here that they overstate the existence of spare capacity in OPEC.

Gholz and Press argue that the existence of substantial spare capacity is an inevitable result of the presence of a cartel. They write that “when members produce less than they could, they create spare capacity,” asserting that this is “the *raison d’être* of any cartel.” They then claim that “Cartel members can turn on that slack relatively quickly in response to a supply disruption elsewhere.” But this confuses short and long term restraint. Cartel members can restrict supply either by choosing not to produce from existing capacity or by underinvesting in productive capacity in the first place. The latter approach raises prices to a higher level than what they otherwise would be without introducing any slack that can be turned on “relatively quickly.” Indeed most members of OPEC do not appear to carry any spare capacity at all. Only Saudi Arabia, Kuwait, and the United Arab Emirates do, and among them, only Saudi Arabia appears to carry more than about half a million barrels per day, while Kuwait has shown signs of abandoning even its small spare capacity holdings.<sup>2</sup> This makes considerable sense: when states cannot credibly commit to short-term restraint, they exercise long-term restraint instead.

Gholz and Press argue further that “because cartel members always have an incentive to cheat by exceeding their output quota, cartel leaders like Saudi Arabia in OPEC usually maintain significant slack capacity to discipline wayward members.” This was certainly true in the past. Yet today, since few OPEC countries hold meaningful amounts of spare capacity, much of the incentive for Saudi Arabia to hold its own reserves as a disciplinary tool is gone.

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<sup>2</sup> *Oil Market Report*, International Energy Agency, Paris, 12 May 2011, 20–22.

The authors add to this argument by asserting that “oil shocks impede smooth cartel management. Global production has dropped, so someone ought to replace it, but who? Each member will want a share.” They continue: “Because OPEC cartel members tend to possess most of the world’s spare capacity, the breakdown of cartel discipline in the wake of a shock can trigger major increases in global oil production.” Once again, though, the fact that spare capacity outside of Saudi Arabia is limited means that this dynamic, to the extent that it exists, can contribute little to increasing global supplies.

One might respond by asking why Saudi Arabia has any spare capacity at all. In part, spare capacity results from the inevitable mismatch between supply and demand in a difficult to predict oil market. Saudi Arabia also occupies a special position: Saudi motivation to carry spare capacity appears to be driven as much by its desire to be seen as a responsible contributor to the international economic order (and particularly to its relationship with the United States) as by anything else. Yet this motivation, too, is fraying, particularly in the face of rising costs of maintaining spare capacity. Saudi officials have asserted that Saudi Arabia aims to hold only 1.5–2.0 million barrels of oil per day of spare capacity, less than the amount of oil currently produced by Iran, the UAE, Kuwait, Iraq, or Algeria, all of which face substantial geopolitical risk. And for extended periods in recent years, total OPEC spare capacity has dropped even lower: between mid-2004 and early 2007, OPEC spare capacity was below 2 million barrels per day; the same was true between mid-2007 and early 2009. Gholz and Press refer to this sort of occurrence as a “rare circumstance,” but roughly half of the the past decade is not rare.<sup>3</sup>

Gholz and Press present a series of historical cases to back up their theoretical arguments. Yet they ignore structural changes in the oil market that have taken place since the last of their examples (the Venezuelan oil strike of 2002–2003). Most important, OPEC spare capacity has declined markedly and has stayed low, with the exception of the first year or two following the beginning of the most recent economic recession.

The arguments that Gholz and Press present to downplay the importance to global oil markets of domestic unrest in major oil producing countries other than Saudi Arabia are ultimately unpersuasive. Non-OPEC supply response is likely to be weak in the wake of a supply shock; private inventories, meanwhile, may well worsen the problem rather than ameliorate it. Government stocks may be able to buffer a disruption, but in the absence of a careful economic analysis, it is premature to contend that they could be relied on alone in the case of a crisis. Alas, the trump card—OPEC spare capacity—has declined in power in recent years and shows little sign of returning to its previous role.

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<sup>3</sup> The arguments in this paragraph are based largely on Robert McNally and Michael Levi, “A Crude Predicament,” *Foreign Affairs* 90, no. 4 (July/August 2011): 100–111.

## SHIPPING LANE DISRUPTIONS

Gholz and Press argue that the only disruptions of shipping lanes that could result in painful economic consequences are disruptions in the Strait of Hormuz. This is based on the contention that disruptions elsewhere—particularly in the oft-discussed Strait of Malacca and possibly the South China Sea—could be mitigated by simply rerouting tanker traffic. There is no alternative route for most traffic that passes through the Strait of Hormuz. The authors write that “many analysts worry about threats to tanker traffic through the Strait of Malacca, a popular route for ships traveling between the Middle East and East Asia. But if tanker traffic were harassed there, captains could simply sail through the Straits of Lombok and Makassar instead—a minor diversion.” They also contend that “even though tankers’ peacetime routes pass near the Spratly Islands, avoiding the South China Sea entirely [which would require rerouting around Australia] would have a trivial effect on shipping time or oil prices.”

This is far from categorically true. The authors write that “sailing through the Straits of Lombok and Makassar instead of Malacca would add approximately 10 percent to the shipping time from the Persian Gulf to East Asia” and add that “the net cost of the extra transportation time would be small.” But the source they point to for those claims makes clear that its cost projections apply only over the long term, where new tanker capacity can be built and hence price increases reflect only the added cost of shipping, not scarcity rents to tanker owners. A different analysis is required to assess responses over periods of less than about two years, approximately the time needed to deliver new tanker capacity to market.

Alas, these short-term consequences could be far more severe. The basic reason is that seemingly small increases in shipping distance can overwhelm the capacity of the global tanker fleet (which is roughly static in the short term), physically constraining the ability of oil to move to markets. Prices of oil in distant markets must thus rise in order to balance demand with supply.

For simplicity, I use the data and scenarios from the same reference upon which Gholz and Press base their analysis.<sup>4</sup> That study argues that closure of the Strait of Malacca would increase global tanker shipping demand by 13.4 percent. Tanker shipping demand is measured in ton-miles, which combines the amount that ships can carry and the speed at which they can carry it. It also argues that if the South China Sea were closed too, shipping demand would be increased by 23.3 percent. In addition, the study notes that spare shipping capacity was equal to 13.7 percent of total utilized capacity, on average, between 1990 and 1994. Spare shipping capacity reflects ton-miles

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<sup>4</sup> John H. Noer and David Gregory, *Chokepoints: Maritime Economic Concerns in Southeast Asia* (Washington, DC: National Defense University Press, 1996). This reference is dated 1996. An updated analysis would need to reflect changes in patterns of oil consumption and trade, and in tanker markets.

that are unused due to layup in port, repairs, and steaming at sub-maximum speeds.

This implies that if the Strait of Malacca and the South China Sea route had been suddenly closed during the period studied, global demand for tanker shipping would have exceeded supply by nearly 10 percent. Markets would have had two ways to adapt. Consumers in locations far from centers of oil supply could reduce demand, thereby cutting demand for shipping. But even a small reduction could require prices to rise sharply. If, for example, consumers reduced their demand by 5 percent in order to adjust to the absolute shortage of shipping capacity, that might require oil prices to rise by as much as a factor of ten.<sup>5</sup> The consequences of this would not simply be local. Tanker freight rates would need to rise in order to drive up final consumer prices (and ration tanker supply). That rate rise would be global; thus all consumers who were dependent on tanker-delivered oil (or at least oil carried in similar class tankers) would see large price rises.

Traders could also, in principle, rearrange shipments in order to decrease the total number of ton-miles required globally. Determining the extent to which this could conserve scarce freight supply requires extensive modeling and is beyond the scope of this note. At a minimum, though, absent analysis showing that rearranging oil trade could help much of the world avoid the need for extremely high short-term prices, prudent policy-makers should not rely on the expectation of such adjustments to blunt the impact of shocks.

Indeed trends in the tanker market since the study upon which Gholz and Press rely was published (in 1996) suggest that the problem could actually be worse. That study, as noted, estimated spare shipping capacity at 13.7 percent of total utilized capacity. The shipping industry, though, is highly cyclical, and the early 1990s was a time of abundance. From 2000 through 2005, for example, spare shipping capacity averaged 3 percent; in 2004, it dropped as low as 1.1 percent.<sup>6</sup> A major disruption in the Strait of Malacca would have overwhelmed tanker capacity in such a market.

To be certain, there are countervailing factors that might dampen the impact of a disruption. In particular, private and government inventories might help blunt the consequences, at least for some period of time. Moreover, I have not addressed the actual feasibility of efforts to close one or more important Southeast Asian shipping lanes (something that Gholz and Press

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<sup>5</sup> "Table 3.1. Oil Demand Price and Income Elasticities," *World Economic Outlook: Tensions from the Two-Speed Recovery: Unemployment, Commodities, and Capital Flows*, International Monetary Fund, Washington, DC, April 2011, 97. This is based on a price elasticity of demand of  $-0.02$ . If one uses the more generous  $-0.05$ , prices must still rise almost threefold. Such prices are, of course, well beyond the range of data upon which the elasticity estimates are based.

<sup>6</sup> *Review of Maritime Transport 2006*, United Nations Conference on Trade and Development, Geneva, 2006, 46.

do not address either). There is considerable disagreement over whether the Strait of Malacca could be closed to shipping in any meaningful way.<sup>7</sup>

### VULNERABILITIES REMAIN

Gholz and Press are to be commended for deflating much of the hype surrounding energy security. But they go too far. Because they rely too much on expectations of substantial OPEC spare capacity, they do not present a persuasive case for focusing on domestic instability only in Saudi Arabia. And because they do not consider the short-term limits to adjustments in the tanker market, they may severely underestimate the risks associated with sea lane closures in Southeast Asia. Future research on the relationship between energy and security should seek to illuminate both areas.

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<sup>7</sup> For example, Dennis Blair and Kenneth Lieberthal, "Smooth Sailing: The World's Shipping Lanes are Safe," *Foreign Affairs* 86, no. 3 (May/June 2007): 7–13.