

IRET Congressional Advisory

INSTITUTE FOR RESEARCH ON THE ECONOMICS OF TAXATION

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RUNNING ON EMPTY – SENATE PROPOSALS FOR NEW OIL TAXES

Energy prices are driven by supply and demand. This study uses basic economic concepts to show that recent movements in energy prices are explained by supply and demand forces rather than by any business conspiracy. This study also examines how oil-tax proposals like those in the Senate tax reconciliation bill, or suggested in recent hearings, would affect the oil industry, its customers, and the broader U.S. economy. It concludes that Senate efforts to raise taxes on energy producers would, if enacted into law, restrict supply and further increase prices.

Storms, Price Swings, and Hearings

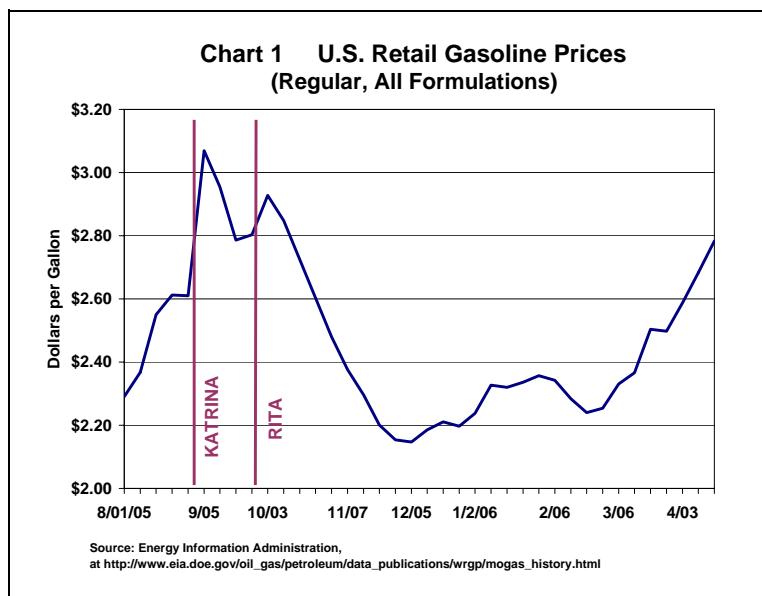
In the second half of 2005, prices of oil and natural gas jumped sharply following hurricanes Katrina and Rita. The hurricanes caused massive damage in the Gulf Coast region, where a disproportionate share of the nation's oil and gas extraction and oil refining capacity are located. The Chairman of the Federal Trade Commission told Congress, "At one point, over 95 percent of Gulf Coast crude oil production was inoperable, and numerous refineries and pipelines were either damaged or without electricity."¹ Not only was production of new crude and refined products interrupted, but power failures stranded some

existing inventory that could not be pumped from storage nor pushed through pipelines.

Many members of Congress understood that the hurricane-related supply disruption caused the price spike. Some members, though, claimed that the price increase was excessive and was engineered by large and small businesses in this country that included various producers, refiners, distributors, and gas station owners, who supposedly hoarded inventories or exercised market power. Both points of view were represented at a Senate hearing last November 9, held jointly by the Senate

Energy and Natural Resources Committee and the Senate Committee on Commerce, Science and Transportation.

The timing of the price spike strongly supports the proposition that it was due to the supply disruption: oil prices shot up when output was lost and transport interrupted, but it quickly fell back to where it had been before the hurricanes sidelined production as production and distribution facilities returned to service. This is shown in Chart 1. (The subsequent price increase in the spring of 2006 is discussed below.) Natural gas prices also spiked



after the storms and then collapsed toward the end of the warmer-than-normal winter heating season. If the 2005 price jumps had been the result of business manipulation, businesses would not have needed to wait until the hurricanes to raise the price and they would not have allowed the price to start dropping almost as soon as the recovery from the hurricanes began.

Nevertheless, the Senate voted for legislation that appears to be based on the mistaken belief that businesses are manipulating oil prices, combined with the erroneous notion that higher taxes will not adversely affect customers by raising prices and lowering output. The Senate's Tax Reconciliation Act of 2005 contains three provisions targeting the five large integrated oil companies that testified at the Senate hearing last November. They are U.S.-headquartered ExxonMobil, Chevron, and ConocoPhillips, and the U.S. subsidiaries of Royal Dutch Shell and British Petroleum. One provision would boost their taxes by requiring them to make a one-time misstatement of their inventory costs, based on a false cost number supplied by the U.S. Senate. Another provision would single out the three U.S.-based companies in the group and strip them of many of the foreign tax credits they can claim under current law. A third provision would require the five companies to write off their exploration costs more slowly than other oil and gas companies.

These revenue raisers are part of a set of proposed tax increases in the Senate bill. The House passed a Tax Reconciliation Act that does not contain the tax increases and differs from the Senate

proposal in other respects. The two versions of the bill are now in a House-Senate conference.

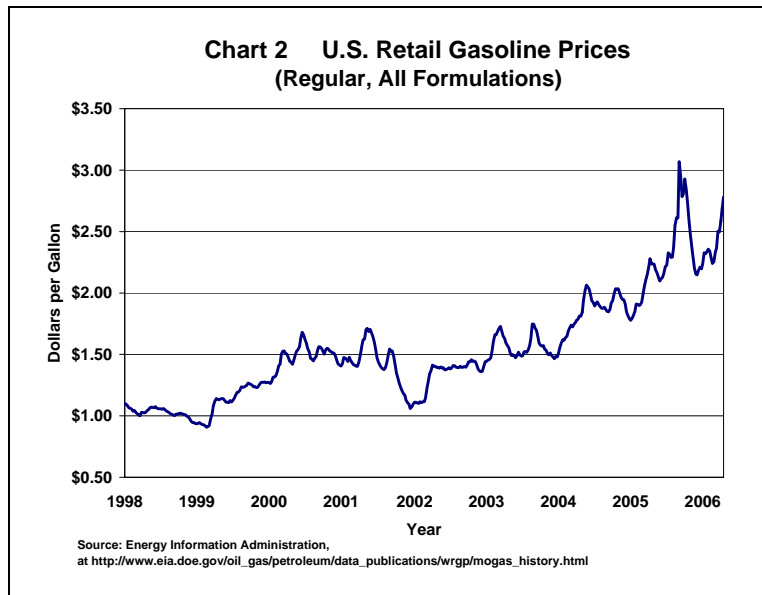
An earlier *IRET Congressional Advisory*² examined the main revenue raisers in the Senate bill and found that they are badly flawed in terms of tax principles, accounting principles, and energy policy. The paper concluded that the House bill is much better. Another *IRET Advisory* criticized the Senate provisions for being very close to a bill of attainder, in that they are written to target specific companies, and warned that they would reduce energy security.³

Prices Retreat and Rebound

Oil prices quickly retreated from their hurricane-induced peak, but there has been a large price runup in recent weeks. Once more, the culprits are supply and demand. Oil demand is rising throughout the world, in part due to sharply increased demand in developing countries like China and India. Indeed, this rising world demand has been affecting prices since 1999 (interrupted by the 2001 global recession). See Chart 2. In the United States seasonal factors related to increased summer

driving will place added pressure on demand in coming weeks. On the supply side, several major oil producing nations are experiencing significant supply problems due to civil unrest.

There are also supply problems in the United States. Production and refining are still below normal because of damage from the hurricanes. Adding to hurricane-related problems, U.S. environmental laws and regulations require that special gasoline blends be used in smog-susceptible



areas during part of the year and refiners are now in the process of switching over to those blends. Refining and distributing dozens of different blends in different parts of the country based on exacting government specifications is a major production and logistics challenge for the oil industry. New environmental standards will reduce the amount of sulfur in oil products but strain the nation's limited refining capacity even more.

If those problems weren't enough, the energy bill that Congress passed last year essentially requires refiners to stop using the gasoline additive methyl tertiary butyl ether (MTBE) and replace it with ethanol.⁴ Substituting ethanol for MTBE requires difficult and expensive changes in the production process.⁵ Furthermore, the sudden increase in mandated ethanol use was not anticipated. Domestic ethanol supplies are tight, and will be until new production facilities are built over the next several years. Meanwhile, a tariff of 54 cents per gallon limits the importation of ethanol from Brazil, which could otherwise ease supplies during the transition from MTBE. As a result, the price of ethanol has more than doubled in the last year to about \$2.65 per gallon (supply and demand at work again). The abrupt switch from MTBE to ethanol is a made-in-Washington supply shock that threatens to push prices significantly higher over the next several months.

None of these supply and demand pressures is due to any malfeasance or collusion on the part of the many large and small businesses in the oil industry. A thoughtful Congressional inquiry into why gasoline prices have increased would need to examine supply and demand factors. Among the supply issues, Congress should consider how its own actions have caused gasoline supplies to be smaller than otherwise. On March 14, 2006, however, the Senate Judiciary Committee held a hearing at which top executives of the five largest integrated oil companies were again placed in the hot seat, along with the head of Valero, the largest U.S. oil refining company.⁶

Several members of the panel blamed the companies for oil prices being significantly higher

than they were several years ago. Senator Charles Schumer (D-NY) zeroed in on recent mergers in the industry, charging, "You now have four players, prices have spiked and what has gone up has not come down. Coincidence? I think not. We should explore divestiture."⁷ Actually, prices did come down following the hurricane-related price spike, "four players" greatly overstates industry concentration, and government-ordered dismemberment of companies is usually regarded as a last-resort sanction, even in cases unlike this one where there is strong evidence of anticompetitive behavior.⁸ Senator Patrick Leahy (D-VT), the committee's ranking member, called for "[a] windfall profits tax on the record-breaking profits that oil companies have been raking in," and he suggested that some of the tax money be used to "provide refunds" to "help consumers afford home heating oil now and for years to come."⁹ Winters are cold in Vermont.

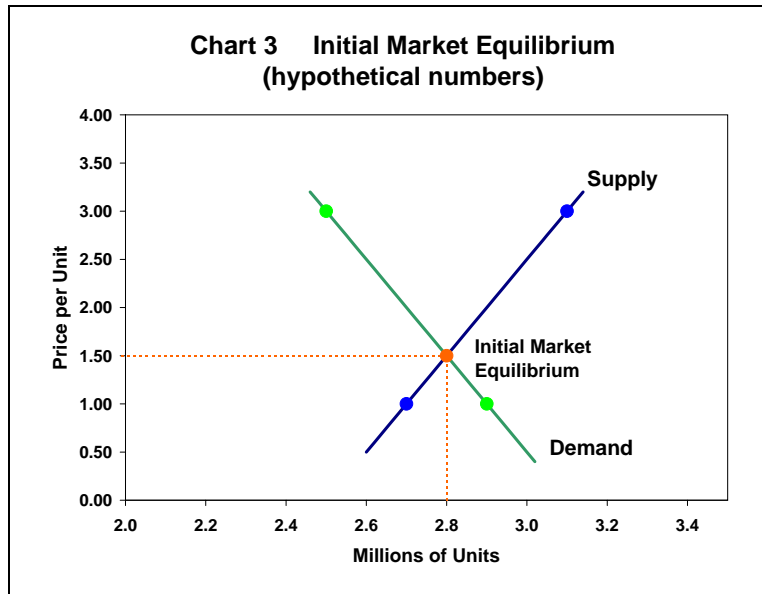
At the time of this study's release, it is being reported that Congressional leaders are planning to ask President Bush to have the Justice Department and Federal Trade Commission launch price gouging investigations.¹⁰ Commenting on Congress's behavior, another news story describes "[p]rice-gouging investigations" as something "which lawmakers call for each time pump prices spike."¹¹ More helpfully, the Hill leaders also want the President to order the Environmental Protection Agency to issue emergency waivers of the "boutique" gasoline regulations that would allow refiners to increase their output.¹²

Analysis of Basic Supply and Demand Factors

Supply schedule. A basic rule of supply is that producers are willing and able to offer a larger quantity as price rises, other things equal. For example, as price rises in the oil industry, producers will work their equipment more intensively, develop fields that would otherwise not be worth developing, and bid more supplies away from foreign markets. This is illustrated in Chart 3, where producers offer 2.7 million units at a price of \$1 per unit and 3.1 million units at a price of \$3 per unit. The numbers are purely hypothetical. (Readers can skip over the

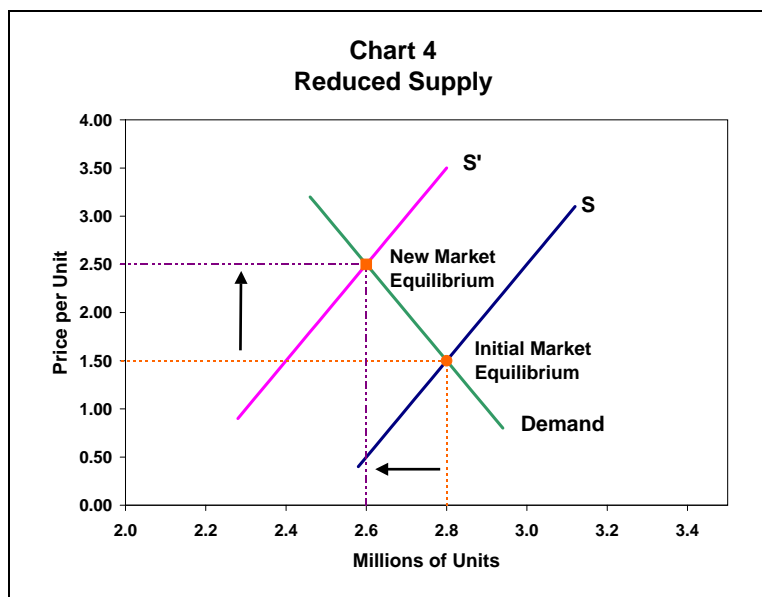
numbers if they find the discussion clearer without them.)

Demand schedule. A basic rule of demand is that customers desire a smaller quantity as price rises, other things equal. For instance, as price rises in the oil industry, customers will look for other fuels, invest in equipment that uses less energy, and in other ways change their behavior to reduce their fuel needs. This is also illustrated in Chart 3, where buyers seek 2.9 million units at a price of \$1 per unit but only 2.5 million units at a price of \$3 per unit. Again, the numbers are hypothetical.



Market equilibrium occurs at 2.8 million units and a price of \$1.50 per unit because, at that price, the amount sellers offer just equals the amount customers are willing to buy.¹³

Price rises when supply tightens. Now suppose the supply schedule contracts, so that the quantity available at each price is less than before. The tighter supply is illustrated in Chart 4, where the supply schedule has shifted in from S to S'.¹⁴ At the old equilibrium price of \$1.50, for instance, the quantity supplied has dropped from 2.8 million units to 2.4 million units. (Again, the concepts are real but the numbers are hypothetical.) The predictable response to the



reduced supply is that prices are bid up until they settle at a new market-clearing equilibrium, characterized by a higher price and smaller quantity. In Chart 4, the new equilibrium point is 2.6 million units at a price of \$2.50 per unit. The oil market responded to the hurricane-related damage exactly as theory predicts.

The Federal Reserve Bank of Richmond recently published an article that also pointed to supply and demand as the explanation for high gasoline prices.¹⁵ The article looked at the oil refinery in Yorktown, Virginia to understand better the supply-side problems. The Yorktown facility is the only significant refinery in Virginia or the surrounding several states, and it is running flat out. The lack of spare refining capacity reduces the region's ability to compensate for supply disruptions elsewhere, such as lingering problems at the Gulf Coast refineries hit by hurricanes Katrina and Rita. However, largely because of community opposition and onerous government regulatory and permitting requirements, not a single new oil refinery has been built in the United States in the last 30 years. The owners of the Yorktown facility have invested heavily in their plant, but much of that has been to meet expensive environmental regulations, eating into profits and reducing the funds available for investments to increase capacity.

Government price controls would create shortages. The supply and demand framework is also useful in understanding why government price controls would only make matters worse when supplies are tight. Suppose there is the same supply disruption as in the previous example. However, this time the government prevents the price from adjusting by decreeing that price increases are "illegal price gouging". By blocking market signals, the government edict would promptly create a shortage, as illustrated in Chart 5. At a price of \$1.50 per unit, buyers would want 2.8 million units in the hypothetical example but suppliers would be offering just 2.4 million units, creating a shortage of 400,000 units. For a real world example, remember the botched government effort in the late 1970's to impose price controls and then to apportion oil supplies regionally, which resulted in mammoth lines at service stations.

This is in contrast to the efficiency with which the market system would handle the supply disruption. On the demand side, a rising price would signal buyers to reexamine their purchase plans. The buyers who valued the product least would cut back their purchases first. (Customers would cancel or defer purchases they valued at less than \$2.50 per unit but continue making purchases that they valued at \$2.50 per unit or more.¹⁶) On the supply side, a rising price would signal suppliers to try harder to obtain additional output. In the illustrative example, a price of \$2.50 per unit would call forth 200,000 units that would not be available at a price of \$1.50, preventing half the output loss that would otherwise have occurred. For a real world example, note that very few areas of the nation experienced empty gasoline pumps or lines even in the immediate aftermath of the storms, as consumers postponed

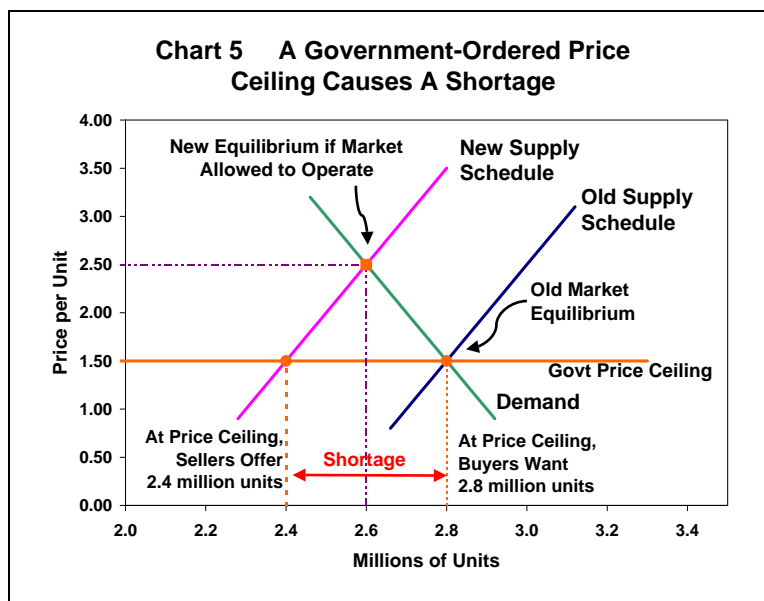
buying to wait for lower prices. Note how the multinational energy firms redirected tankers at sea to resupply U.S. refineries cut off from the Gulf, and brought in refined products from Europe and elsewhere to restock retail outlets. Such imports would not have been possible under any price ceilings set below international levels.

Supply and demand in the world market. Even though oil's price quickly fell after the hurricanes, it has climbed rapidly in recent weeks and is much higher than it was several years ago. What could account for this other than the sort of business collusion that Senator Schumer suggested? The answer again is supply and demand.

Because oil is extensively traded in a worldwide market, supply and demand conditions abroad affect the price of oil in the United States. Unfortunately, as mentioned earlier, conditions abroad have moved adversely on both the supply and demand fronts. Sharply

higher demand in developing countries like China and India has increased worldwide oil demand and bid up the price in all markets, including the United States. Meanwhile, violence in the Middle East and unrest in some other major producing countries, such as Venezuela and Nigeria (Nigeria's output is down by 500,000 barrels daily due to civil strife), have depressed supply, which has further pushed up the worldwide price. Also older fields in stable parts of the world continue to age and produce less each year. The U.S. government is adding to the supply problems by requiring a variety of "boutique" blends and by forcing the sudden shift from MTBE to ethanol.

These supply and demand effects are shown in simplified form in Chart 6.¹⁷ The demand schedule



has shifted out from D to D'. The supply schedule has shifted in from S to S'. Both shifts put upward pressure on the price, and the market equilibrium has moved from point E to point E'. In the hypothetical example, the equilibrium price has climbed from \$1.50 to \$2.75.

Severin Borenstein, a University of California at Berkeley economist, made similar points in testimony at the Judiciary Committee hearing. He explained, "The world oil price has risen rapidly and is very high today compared to the recent past primarily because demand growth has been very rapid and crude oil production capacity is constrained in the short run."¹⁸ He said that U.S. oil companies have limited market share and market power in the worldwide market and "did not cause the price of oil to go up."¹⁹

A volatile market.

Policy makers should bear in mind that the price of oil exhibits large short-run fluctuations in response to shifts in supply and demand. For example, the price of crude dropped over 50% from early 1984 to early 1986, more than doubled from late 1988 to late 1990, and fell by more than half from the start of 1997 to the end of 1998, eventually bottoming out at slightly above \$11 a barrel.²⁰ Looking at only the high-price years gives a distorted impression.

The price of oil is volatile because customers' energy use and suppliers' productive capacity are difficult to adjust significantly (are "inelastic") in the short run. Supply and demand are inelastic in the short run because they are largely determined by past investment decisions. Suppliers and consumers are more responsive to price in the long run, which is why the price does not usually remain extremely high or low for long. Over time, high oil prices will

motivate producers to develop previously uneconomic oil fields, and will cause consumers to switch to cars and trucks that are more fuel efficient, or that use less costly types of fuel, as the fleets need to be replaced. These reactions will push down oil's market price.

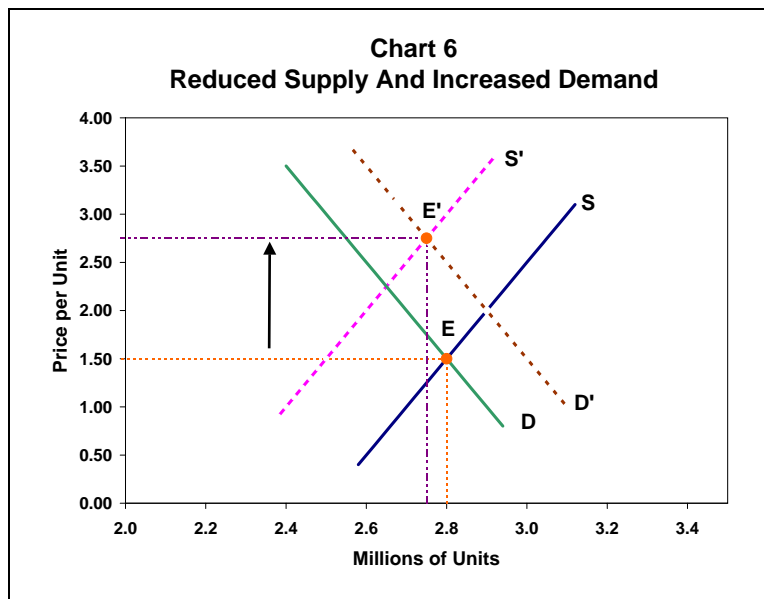
Many other commodities are also subject to large and rapid price movements. For example, the price of zinc is up 80% compared to a year ago and the price of copper is up 55%, with both increases partially attributable to strong demand in China.²¹

Concerns about damage to the Florida citrus crop has caused orange juice futures to rise 46% in the last year, to their highest level in 14 years.²² As noted previously, ethanol, which is mainly derived from corn, has doubled in price in the last year due to high demand. Slapping punitive taxes on oil companies due to today's high prices would make about as much economic sense – none – as slapping

punitive taxes on miners, orange juice producers, or corn farmers.

Have prices risen because of supply and demand or because of mergers?

Because some of the biggest U.S. businesses are integrated oil companies and because there have been many oil-company mergers since the early 1990s, some people claim that oil companies have enormous market power and have used that power to drive up prices. For example, Sen. Leahy said at the Judiciary Committee hearing that "merger-mania within the oil industry ... [has] significantly diminished competition, leading to higher prices for consumers."²³ Seventy-five or a hundred years ago, most economists would have agreed that size equals market power and that a few businesses in a



concentrated industry can easily collude. Based on experience and theory, however, most modern economists reject those notions. In industries like automobiles, steel, and airlines, one sees that large firms often have very little market power. If even a few firms are in a market (or could quickly enter the market), price competition tends to be vigorous, and inefficient firms, whether large or small, often lose market share and suffer financially.

The growth of international trade since World War II has also redefined what is meant by big. A company that seems gigantic relative to domestic companies often looks much smaller in the world market. In the oil industry, the real giants are foreign oil-producing nations and national oil companies. The head of BP America testified to the Senate Judiciary Committee, "Foreign national oil companies control more than 55 percent of global oil and gas production and more than 90 percent of the world's oil and gas reserves."²⁴

A government agency, the Federal Trade Commission (FTC), carefully reviews proposed oil-company mergers and insists on changes whenever it thinks there is any threat to competition. In testimony to the Judiciary Committee, the FTC reported, "Mergers of private oil companies have not significantly affected worldwide concentration in crude oil. This fact is important, because crude oil prices are the chief determinant of gasoline prices. Despite some increases over time, concentration for most levels of the United States petroleum industry has remained low to moderate."²⁵

Those who assert that high gasoline prices are due to mergers often cite a 2004 study by the General Accountability Office (GAO).²⁶ The GAO study claimed that mergers in the oil industry raised wholesale gasoline prices by a penny or two a gallon. However, according to the FTC, which has greater expertise in this area, the GAO study is "fundamentally flawed".²⁷ Among other problems, the FTC found that the GAO failed to control for "changes in gasoline formulation [required by government mandates] and seasonal changes in demand"²⁸, although those factors normally produce price changes much larger than a penny or two a

gallon. Even if one erroneously accepted the GAO's flawed analysis, a penny or two is small compared to recent gasoline price movements, which would indicate that forces other than mergers explain most of the price run-up

OPEC

There is collusion in the oil market, but it involves governments – not businesses. The countries belonging to the Organization of the Petroleum Exporting Countries (OPEC) operate an oil cartel. Since its formation in 1960 but most actively since the early 1970s, OPEC has tried to limit members' oil production in order to raise the market price above the competitive level. OPEC has created an adverse shift in the supply schedule, with the largest supply shock coming in the 1970s. OPEC has increased oil prices, but the cartel's price-fixing power is somewhat weakened by oil production in non-OPEC nations, cheating among OPEC members, development of more energy efficient vehicles and appliances for use by consumers, and a shift toward other fuels. Those long-term responses explain why oil's real price fell for decades following its 1980-1981 peak.

Because OPEC's members are sovereign nations, they are beyond the reach of U.S. antitrust laws. Nonetheless, several Senators at the Judiciary Committee hearing endorsed legislation to subject foreign governments to U.S. antitrust laws.²⁹ Enforcement would be difficult, would lead to charges of American imperialism, and would invite vigorous political and economic retaliation against American interests abroad. Congress should be careful not to punish private-sector businesses, with the harshest penalties falling on domestic ones, out of frustration with OPEC.

Taxing a product more heavily leads to a smaller quantity at a higher price

In 1980, the Carter Administration and Congress responded to rising oil prices by imposing the Windfall Profit Tax on much of domestic oil production. Washington promised that the tax was a marvel of government engineering that would only

siphon off "excess" profits while not interfering with oil production. In practice, the tax was arbitrary and extraordinarily complicated. It severely depressed domestic oil production, and gave a tax advantage to foreign oil producers. Salvatore Lazzari of the Congressional Research Service concluded that the Windfall Profit Tax lowered domestic oil production by 3% to 6%, thereby costing jobs and income at home and increasing America's dependence on foreign oil.³⁰ The tax was repealed in 1988.

The proposed new oil taxes that the Senate has voted to enact are narrower than the old Windfall Profit Tax, but they rely on the same mistaken beliefs that oil companies are charging unjustifiably high prices and that the government could tax away some of that revenue without causing any market distortions. The new Windfall Profits Tax that some members of Congress would like to enact relies on similar erroneous assumptions.

The basic supply and demand analysis presented here has illustrated that market forces – not a grand conspiracy by the thousands of businesses in the oil industry or by the largest companies – are quite sufficient to explain the rise in oil's price. One can use the same supply and demand analysis to see in general terms what would happen if Congress responded to higher energy prices by enacting new oil taxes, such as the oil taxes in the Senate version of the Tax Reconciliation Act or a so-called Windfall Profits Tax. This is shown in Chart 7, where it is assumed that production problems have shifted in the supply schedule from S to S'. The tighter supply pushes up price and reduces quantity. A new tax would worsen the problem by increasing costs still more in the

industry, pushing the supply curve further inward to S''.

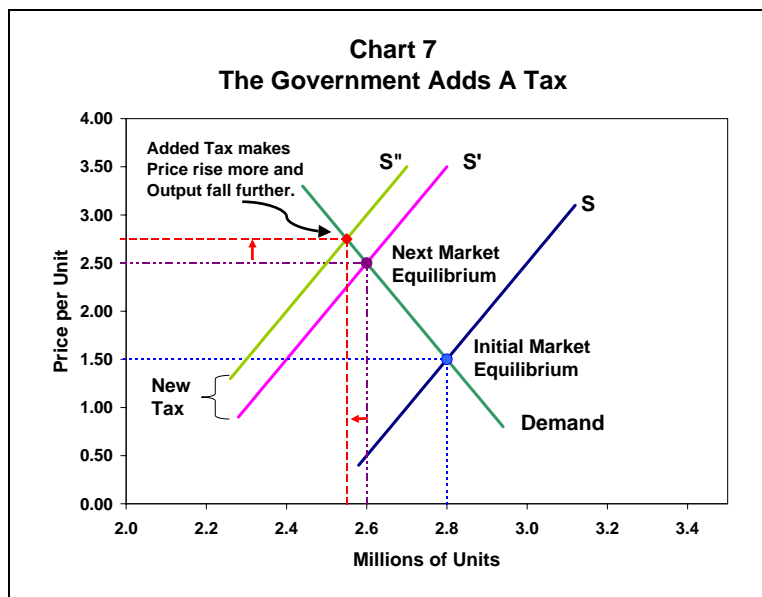
Notice that because of the tax-induced supply constriction, the market clearing price would rise even higher and output would fall even more.³¹ (The arrows in the chart show the tax-induced drop in quantity and rise in price. In the illustrative example, the tax's effect would be to boost price from \$2.50 to \$2.75 and cut output from 2.6 million units to 2.55 million units.) Hence, in addition to hurting the companies' shareholders and employees, the tax would inflict added pain on the millions of businesses and households throughout the economy

who purchase oil and who are already reeling from higher prices. The government claims it wants to help these customers. Some help.

Oil company taxes have already risen with profits.

The higher profits earned by oil companies in recent months are already subject to high federal and state marginal tax rates, and are already

increasing the oil industry's tax payments to federal and state governments. At the same time, higher energy prices are reducing profits (compared to what they would have been) of energy-using companies such as utilities, smelters, trucking firms, railroads, and airlines, lowering their tax liabilities. Since much energy is used by final consumers in the household sector who do not get to deduct the higher energy costs, the net effect is a windfall for the government sector. Adding more taxes on the oil companies would simply drain more money from the private sector as a whole, and raise energy prices further. In this situation, taxing businesses when they are up means taxing consumers when they are down.



The oil industry is already one of the most heavily taxed in the U.S. economy. The Tax Foundation calculated that the domestic oil industry's tax bill has exceeded \$2.2 trillion (adjusted for inflation) over the last quarter century.³² The tax number would have been even higher except that the calculation excluded "local property taxes, state sales and severance taxes and on-shore royalty payments."³³ The Tax Foundation also reported that in 2005, the three largest domestic oil companies (Exxon Mobil, ConocoPhillips, and Chevron) had gross earnings of \$108.2 billion and paid total corporate income taxes of \$44.3 billion.³⁴ When the companies reported higher profits in 2005 than in 2004, the government quickly took a hefty slice of the increase: the companies' total corporate taxes jumped 49.2% from 2004 to 2005.³⁵ The three companies also sent in "over \$114.5 billion in other taxes in 2005, including franchise, payroll, property, severance and excise taxes."³⁶ Looking only at federal and state corporate income taxes, the Tax Foundation estimated that "the average effective tax rate on the major integrated oil and gas industry is ... 38.3 percent. This exceeds the estimated average effective tax rate of 32.3 percent for the market as a whole."³⁷ Based on the taxes the industry currently pays, a sound economic case can be made that it should be less heavily taxed, not hit with additional taxes.

The myth of superhigh profits

But isn't the oil industry so profitable that investors would hardly notice if the government placed a big new tax on the industry? And if investors did notice, wouldn't they just shrug it off? The answer to both questions is "no".

It is true that parts of the industry rang up record profits last fall in dollar terms, and saw a rise in profits as a percentage of invested capital, including inventories, because oil prices are above what was expected when companies made their business plans. This is the flip side of what happened in previous years in which profits were depressed because prices were unexpectedly low. However, dollar profits do not tell any meaningful

story. The industry is so large and has such huge investments that when profits are expressed in dollars, they almost automatically look enormous. To get the real picture, one must judge the success of a company and its level of profitability by comparing profits to invested capital, that is, by looking at its rate of return on invested capital.

Compare two firms. The first has \$20 billion in sales, nets \$2 billion in profit (equal to 10% of sales), and employs \$25 billion in capital. The second has \$2 billion in sales, \$200 million in profit (also equal to 10% of sales), and employs \$1 billion in capital. Which is the more profitable firm, and which is more likely to be expanding capacity and output?

The larger firm has ten times the dollar profits, but it also has ten times the sales of the smaller firm, and both have the same profit per dollar of sales. More important, the larger firm is in a capital intensive industry, and requires the use of more capital per dollar of output than the smaller firm. The larger firm has a return on its capital of only 8% (= \$2B / \$25B). The smaller firm has a return on its capital of 20% (= \$0.2B / \$1B). The smaller firm is more likely to be attracting additional capital and seeking to expand its operations than the larger firm.

In the last two decades, returns on investment in the U.S. oil industry have mostly *lagged behind* the average for a broad cross-section of American industries. Chart 8 plots returns on investment in the U.S. petroleum industry against average returns on investment for the Standard & Poor's industrials. Over the period 1985-2004, the average return on investment in the U.S. petroleum industry was 7.9%, which was considerably below the average return of 11.9% for the S&P industrials.³⁸ Indeed, for the first 15 of the last 20 years, returns on invested capital in the petroleum industry lagged by a significant margin. Only in the last five years have returns in the petroleum industry caught up with the S&P industrials.

Given the tightness of refining capacity and some of the accusations on Capitol Hill, one might

think that perhaps returns are very high in refining, notwithstanding below-average returns for the industry as a whole. Chart 9 looks at the refining and marketing portion of the U.S. oil industry. Returns on investment there have been lower than for the industry as a whole and in some years were negative. Returns on investment in refining and marketing averaged 6.5% over the period 1985-2004, meaning that returns on investment in the S&P industrials was almost twice as high. Only in 2001 and 2004 did returns in the refining and marketing sector of the petroleum industry beat the S&P industrials.

Consider the effect on future investment if Congress were now to impose additional taxes on the oil industry. Textbooks on business finance take great care to explain how and why businesses must base their investment decisions on expected after-tax returns, adjusted for risk. Any business school graduate will have had it drummed into his or her head that a project is to be judged on the rate of return to the company after all costs, including taxes, are taken into account. The higher the tax rate, the fewer the number of projects that can clear the risk-adjusted "hurdle rate" of return and justify the effort.

The natural response by the industry to higher taxes, lower returns, and greater uncertainty would be to cut back future investment, reducing the growth of future capacity. As depicted in Chart 7, the taxes would shift in the supply curve, leading to reduced output and higher prices for the millions of producers and consumers who depend on gasoline.

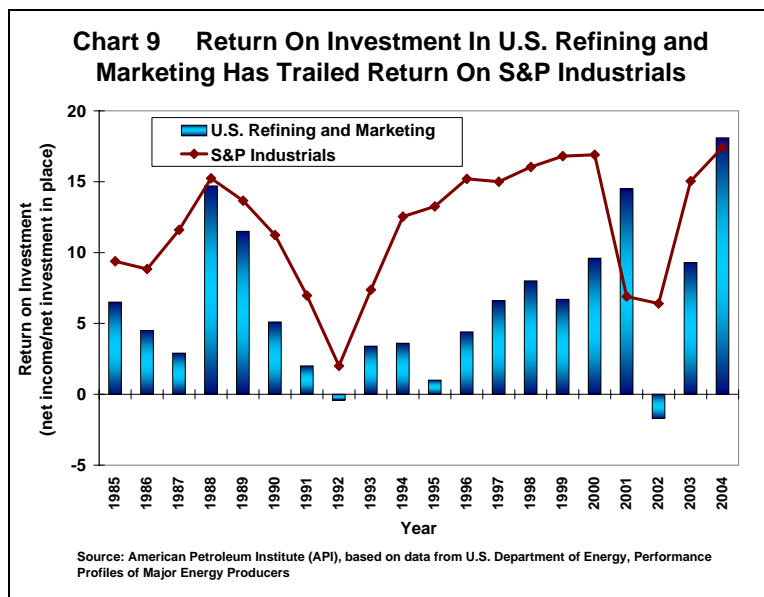
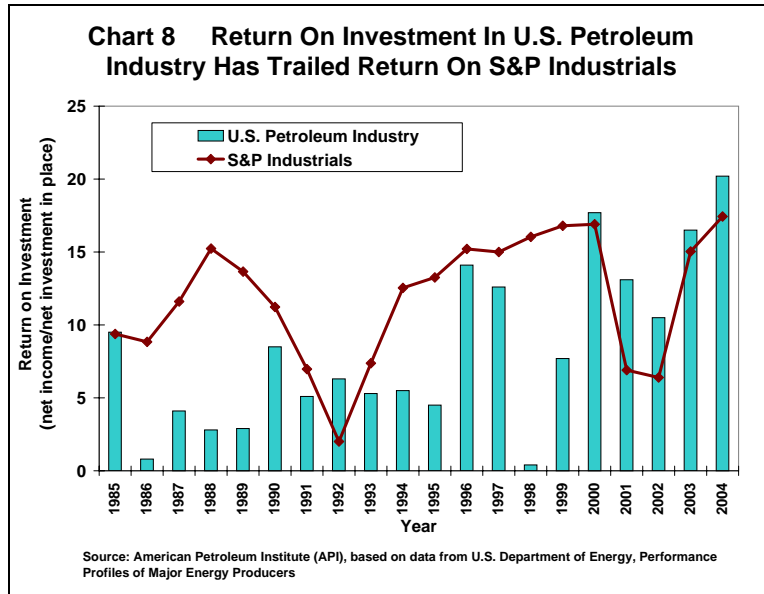
A new tax motivated by politics would create a double whammy. First, it would directly reduce expected after-tax returns in the U.S.

market. Second, it would be a further deterrent to investment by signaling heightened political risk. Congress did not rush to lighten taxes on businesses in the oil industry when prices and profits were temporarily low, but it enacted a windfall profits tax

once before, and is flirting with tax penalties again, at a time when prices are temporarily high. Congress is developing a pattern of stacking the deck.

Market risk is bad enough. One does not know for sure if a well will come in dry or produce a gusher, nor know for sure what the price of oil and gasoline will be in five or ten years. Such

factors raise the break-even rate of return required to justify an investment. Political risk, whether foreign (such as third world rebellions or terrorism that shut



down the oil fields, or coups d'état that lead to the dishonoring of past contracts) or domestic (such as erratic and punitive tax and regulatory policies in a supposedly developed nation), adds to the trouble. It forces companies to be even more cautious in their investment strategy, and to move forward only where returns are estimated to be the very highest.

Sectors within the industry

It is important to note that companies engaged in multiple activities have to earn competitive market returns in each segment of the company in order to justify putting more capital to work in those segments. In the case of oil and gas companies, the "upstream" divisions of exploration and production, and the "downstream" divisions of refining, distribution, and marketing, must all earn their way. In years of high oil prices, the production sector of the industry tends to do relatively well, while the refining and marketing sector is squeezed by the higher cost of crude, and vice versa in years of falling oil prices. The low return on refining in the United States is one of the reasons that there have been no major new refineries built here in decades (although capacity at existing sites has expanded).

Of course, there have been other obstacles to building new refineries, in the form of federal, state and local regulation (which explain in part the bias toward expanding at existing sites). Nonetheless, if lack of refining capacity, or pipeline capacity and interconnectivity, are deemed to be contributing to U.S. vulnerability to bad weather, then imposing higher taxes on refining and distribution would be a mistake. If the nation is better served by having large private inventories of refined products to bridge any supply disruptions, then imposing tax penalties or phony accounting restrictions on the holding and

sale of inventory would be counter-productive. It would only retard investment in the sector. The same holds true, of course, for exploration and production, in that higher taxes would reduce after-tax returns to the industry and shut down projects that are at the margin of economic feasibility.

Conclusion

Imposing new taxes on energy producers will only raise consumer prices further and increase U.S. dependence on foreign crude oil and imported refined products.

Before blaming private industry for rising energy prices, Congress should focus its attention on ways of reducing federal and state obstacles to the production of energy. Governments force energy costs higher in a number of ways: restricting drilling in promising areas on- and off-shore, requiring too many specialized blends of gasoline in specific areas of the country, complicated approval processes for obtaining new sites to build refineries, tariffs on foreign supplies of additives mandated by federal law, and excess taxation, to name a few. The drilling restrictions have not only reduced total supply; they have resulted in a heavy concentration of oil and gas facilities in the western Gulf of Mexico, so close together that a pair of storms was able to knock out a significant share of the nation's capacity in a single month. Easing these restrictions, mandates, and tariffs would reduce the cost of producing energy, increase supply, and promote its geographic dispersion, which would help to reduce consumer prices and lower vulnerability to supply disruptions due to bad weather or political upheavals.

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Endnotes

1. See Deborah Platt Majoras, Chairman, Federal Trade Commission, "Market Forces, Competitive Dynamics, and Gasoline Prices: FTC Initiatives to Protect Competitive Markets," Prepared Statement of the Federal Trade Commission, before Joint Hearing of the Senate Energy and Natural Resources Committee and the Senate Committee on Commerce, Science and Transportation, "Energy Pricing And Profits," November 9, 2005, accessed at <http://commerce.senate.gov/pdf/majoras110905.pdf>.
2. Michael Schuyler, "Senate Tax Provisions Fuel Controversy," *IRET Congressional Advisory*, No. 199, March 2, 2006, available at <ftp://ftp.iret.org/pub/ADVS-199.PDF>.
3. Stephen J. Entin, "How To Not Attain Energy Security," *IRET Congressional Advisory*, No. 201, April 6, 2006, available at <ftp://ftp.iret.org/pub/ADVS-201.PDF>.
4. Tort lawyers have been suing oil companies for alleged damage related to MTBE. The companies previously had the legal defense that MTBE is a government-approved additive that they were essentially required to use by government pollution-control regulations. The oil industry had hoped that the energy bill would reinforce this legal protection. The bill failed to do that. Instead, it sanctioned ethanol as an alternative to MTBE. The required-by-the-government defense for adding MTBE to gasoline expires in early May, and by then just about all U.S. refiners will have stopped using it.
5. Scott Kilman, "Ethanol Shifts Share Prices Into Overdrive," *The Wall Street Journal*, April 13, 2006, p. C1; Editorial, "The Gasoline Follies," *The Wall Street Journal*, March 28, 2006, p. A20; and Steve LeVine and Ann Davis, "Gasoline Prices Cling To Gains Amid Supply Fears," *The Wall Street Journal*, March 28, 2006, p. A2.
6. Senate Judiciary Committee, Hearing on "Consolidation in the Oil and Gas Industry: Raising Prices?" March 14, 2006. On February 1, 2006, the Senate Judiciary Committee held a related hearing but with different witnesses, "Consolidation in the Energy Industry: Raising Prices at the Pump?"
7. Quoted in Steve Hargreaves, "Senators To Big Oil: Where's The Money?" CNNMoney.com, March 16, 2006, accessed at http://money.cnn.com/2006/03/14/markets/oil_hearing/index.htm.
8. Companies wishing to merge must often agree to spin off some components before the government will approve the mergers. Such spinoffs were required with several recent oil-company mergers that the government approved. (For examples, see William E. Kovacic, General Counsel, Federal Trade Commission, "Prepared Statement," Hearing Before the Subcommittee on Energy and Air Quality, House Committee on Energy and Commerce, July 15, 2004, pp. 42-56, accessed at <http://a257.g.akamaitech.net/7/257/2422/03nov20041200/www.access.gpo.gov/congress/house/pdf/108hr9/95456.pdf>.) However, Sen Schumer is talking about government-ordered dismemberment of existing companies, which is very rare.
9. Senator Patrick Leahy, Testimony, Senate Judiciary Committee, Hearing on "Consolidation in the Oil and Gas Industry: Raising Prices?" March 14, 2006, accessed at http://judiciary.senate.gov/print_testimony.cfm?id=1804&wit_id=3972.
10. Steven Mufson and Timothy Dwyer, "Leaders Question Gasoline Prices," *The Washington Post*, April 22, 2006, p. D1, accessed at http://www.washingtonpost.com/wp-dyn/content/article/2006/04/21/AR2006042100977_pf.html.
11. Jim VandeHei, "President Pushes Alternative Fuel Development," *The Washington Post*, April 23, 2006, p. A7, accessed at http://www.washingtonpost.com/wp-dyn/content/article/2006/04/22/AR2006042201174_pf.html.
12. Steven Mufson and Timothy Dwyer, *op. cit.*
13. The concepts of supply and demand discussed here are thoroughly reviewed in many principles of economics textbooks. See, for example, Robert A. Collinge and Ronald M. Ayers, *Economics; Explore & Apply; Enhanced Edition* (Upper Saddle River, NJ: Pearson-Prentice Hall, 2005), esp. ch. 3-4.

14. The supply shift may be illustrating temporary or permanent changes. Perhaps storms have knocked out some production or transportation facilities, or perhaps there has been a gradual depletion of the producing fields.
15. Doug Campbell, "Bottleneck: What The Fifth District's Only Major Oil Refinery Explains About High Gas Prices In The Wake of Hurricanes Katrina and Rita," *Region Focus*, Winter 2006, Federal Reserve Bank of Richmond, pp. 38-40, accessed at http://www.richmondfed.org/publications/economic_research/region_focus/winter_2006/feature4.cfm.
16. Why couldn't the government use the same information to allocate output at the old price? The answer is that individual buyers have this information about their own demands but *the government does not*. This lack of information by the government is one of the key reasons why government central planning invariably works poorly.
17. The chart can be thought of as showing how worldwide supply and demand determine world price and quantity. To find quantity bought in the United States, one would separately show the U.S. demand schedule in the diagram and read from it the quantity demanded in this country at the world price. (For a review of how individual or firm supply and demand schedules are aggregated to produce market supply and demand schedules, see Collinge and Ayers, *op. cit.*, p. 69.) Also, although there is a single worldwide oil market, it is not entirely homogenous. Transportation costs and other factors cause the United States to have a different buying pattern than countries located elsewhere in the world. According to the U.S. Energy Information Administration, the United States's two largest foreign oil suppliers in 2005 were neighbors Canada and Mexico, and purchases from Venezuela were about as much as from Saudi Arabia. (See U.S. Energy Information Administration, "U.S. Imports by Country of Origin," accessed at http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbbl_a.htm.)
18. Severin Borenstein, Testimony, Senate Judiciary Committee, Hearing on "Consolidation in the Oil and Gas Industry: Raising Prices?" March 14, 2006, accessed at http://judiciary.senate.gov/print_testimony.cfm?id=1804&wit_id=5156.
19. *Ibid.*
20. The comments in the text are based on spot prices per barrel of West Texas Intermediate crude. The data series was posted by the St. Louis Federal Reserve Bank at <http://research.stlouisfed.org/fred2/series/OILPRICE/98>, from data compiled by Dow Jones & Company.
21. See "Zinc Rises to Record, Copper Rallies on Improved Demand Outlook," Bloomberg.com, March 17, 2006, accessed at <http://www.bloomberg.com/apps/news?pid=10000086&sid=aPQF4.pt8Kwc>.
22. See "Orange Juice Climbs to 14-Year High on Crop Damage in Florida," Bloomberg.com, March 21, 2006, accessed at http://www.bloomberg.com/apps/news?pid=10000086&refer=&sid=ashjVH0p5n_A.
23. Senator Patrick Leahy, *op. cit.*
24. Ross J. Pillari, President and CEO, BP America, "Consolidation in the Energy Industry: Raising Prices at the Pump? Part II," Testimony before Senate Judiciary Committee, Hearing on "Consolidation in the Oil and Gas Industry: Raising Prices?" March 14, 2006, accessed at http://judiciary.senate.gov/print_testimony.cfm?id=1804&wit_id=5148.
25. William E. Kovacic, Commissioner, Federal Trade Commission, "Petroleum Industry Consolidation," before Senate Judiciary Committee, February 1, 2006, accessed at <http://www.ftc.gov/speeches/kovacic/testimonyrepetroleumindustryconsolidation.pdf>. This testimony also provides many examples of changes the FTC has required when reviewing proposed mergers (see pp. 9-14).
26. U.S. General Accounting Office, "Energy Markets: Effects Of Mergers And Market Concentration In The U.S. Petroleum Industry," GAO-04-96, May 2004, accessed at <http://www.gao.gov/cgi-bin/gettrpt?GAO-04-96>.
27. Kovacic, Testimony Before the Subcommittee on Energy and Air Quality, House Committee on Energy and Commerce, *op. cit.*
28. *Ibid.*

29. S. 555 and H.R. 695, both titled the "No Oil Producing and Exporting Cartels Act of 2005" or "NOPEC".
30. See Salvatore Lazzari, "The Windfall Profit Tax On Crude Oil: Overview of the Issues," Congressional Research Service, September 12, 1990. This CRS study provides a detailed explanation of the tax and the many problems it caused.
31. One could easily modify the chart to show the demand schedule shifting out (mainly due to higher oil demand abroad) as the supply schedule shifts in. That would slightly complicate the chart but would not alter the core finding that the tax causes a further price increase.
32. See Scott A. Hodge and Jonathan Williams, "Oil Company Profits And Tax Collections: Does The U.S. Need A New Windfall Profits Tax?" Tax Foundation, November 9, 2005, accessed at <http://www.taxfoundation.org/files/1f5e09732ea92979a98565cf2567224f.pdf>.
33. *Ibid.*
34. See Scott A. Hodge and Jonathan Williams, "Large Oil Industry Tax Payments Undercut Case For 'Windfall Profits' Tax," Tax Foundation, January 31, 2006, accessed at <http://www.taxfoundation.org/files/e4fb0b234244cad7d80fa1b430dd1a98.pdf>.
35. *Ibid.*
36. *Ibid.*
37. *Ibid.*
38. The return on investment is measured here as net income divided by net investment in place. The data described in this and the next paragraph in the text were gathered by the American Petroleum Institute (API), based on numbers from the U.S. Department of Energy, *Performance Profiles of Major Energy Producers*.