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OVERVIEW

The oil export ban was originally adopted in the 1970s in response not only to concerns about oil scarcity, but to prevent oil producers from getting around domestic price controls by selling oil into the global market for a higher price. Price controls were repealed in 1981. But even though **the original rationale for the statutory export ban was eliminated over 30 years ago, the export restrictions remain.**

US oil production has boomed over the past few years and led to sharply lower import dependence, but we are still likely to remain a net importer, consuming more than we produce. So why are we talking about exports? The concern is the **ability of domestic refiners to absorb the *kind of oil we are producing*** – US shale oil is very light oil, while many of our refiners have invested billions to handle heavy, sour oil. You can run light oil through a one of those refineries, but it is increasingly economically challenging to do so. If US production continues to grow, the **price of US oil may increasingly be discounted** relative to the world price to incentivize domestic refiners to take it. A lower US price would, in turn, mean **less US production, lower economic activity, and higher net imports.**

Allowing unrestricted crude exports would enable US producers to send light oil to refineries that want it elsewhere and import heavier oil to run in our refineries if it is more economic to do so.

A recent study I co-authored with Trevor Houser of Rhodium Group for the Columbia University Center on Global Energy Policy found that allowing US producers to access global crude markets would **increase US oil production**—although the magnitude and timing of these impacts are highly uncertain. Because gasoline prices are set in the global market, oil exports **would not raise pump prices**, and might even lower them slightly. Lifting oil export restrictions is also consistent with past and present **US trade policy objectives** and yields **geopolitical benefits**. To the extent exports lower oil prices and lead to higher oil use, lifting the statutory restriction would also **raise carbon emissions**. While export restrictions are **neither an appropriate nor cost-effective** way to address climate change concerns, it is critical that **more aggressive climate policy actions** be taken to reduce greenhouse gas emissions.



CRUDE OIL EXPORT BAN BORN FROM SCARCITY CONCERNS OF THE 1970S

The 1970s shook the oil industry to the core and brought energy security to the fore of American public consciousness. Resource nationalization, the end of the dominance of the “Seven Sisters” international oil companies, the Arab oil embargo, and the revolution in Iran redrew the global energy map. These events are often credited with giving rise to concerns about oil “scarcity” that ultimately led to restrictions on the export of oil, although the seeds of the oil export ban were sown years earlier through restrictions on oil trade and oil price controls.

US oil production peaked in 1970 and began a decades-long decline. This coincided with a series of far-reaching economic measures by President Nixon, including price and wage controls. Oil exports were not an issue at first, as the price of crude within the United States was higher than international levels. After the 1973 Arab oil embargo, however, international crude prices soared, giving US producers an incentive to sell their crude abroad. To defend domestic price controls, the government introduced restrictions on exporting crude oil and refined products such as gasoline and diesel fuel. Absent export restrictions, US producers could have skirted the price controls by selling crude oil directly into the global market for a higher price.

The oil export restrictions result from a series of laws enacted in the 1970s, most notably the Energy Policy and Conservation Act of 1975. In the early 1980s, the Reagan Administration eliminated price controls and allowed refined petroleum exports, but restrictions on crude oil exports persist.

CURRENT CRUDE EXPORT REGULATIONS

The crude export laws have been modified in various ways through executive branch actions by both parties since the 1970s. Although crude oil exports are restricted, they are **not entirely banned**. The most notable exception is for exports to Canada, which rose to nearly 500,000 barrels per day in early 2015 from just 67,000 barrels per day in 2012. Swaps and exchanges are also permitted under certain circumstances, most notably with Mexico.

As mentioned, refined petroleum may also be exported, and the US has gone from being the largest net importer of petroleum products in the world in 2006 to the largest exporter today. The ability to export refined petroleum has also brought new scrutiny to the technical distinction between “crude oil” and “refined product,” which is crucial to US export policy. On December 30, 2014, the Commerce Department issued a set of Frequently Asked Questions that identified factors it will consider in making this determination. At a minimum, the revised guidance made clear that lightly processed condensates (very light liquid hydrocarbons) may be exported as refined product.

IMPACTS ON US OIL PRODUCTION

The surge in US oil production has created questions about the ability of US refiners to handle this growing supply. Many US refiners on the Gulf Coast had spent billions over the past few decades to enable their plants to run optimally with heavy, high sulfur (called “sour”) imported crude. New US shale oil production is light, low sulfur, or “sweet” crude.



These existing refineries can absorb lighter oil, although doing so becomes increasingly economically challenging as processing limits are encountered. Even with additional investment, refineries optimized for heavier crudes can still be challenged by lighter oil and by the inability to fully utilize expensive downstream upgrading equipment. As a result, as refineries over time idle high cost processing equipment or incur the cost of building new capacity, they may require a discount from domestic crude producers to justify this change in their crude slate.

A discounted US oil price resulting from the export restriction would mean less investment and less US oil production, which reduces economic activity and employment in the oil sector. In our study, we found that easing the export restriction would boost US production from anywhere between zero and 1.2 million barrels per day on average through 2025.

To date, we have accommodated the boom in US light oil in three ways. First, refineries have made low-cost adjustments to absorb more. An April 2015 study from the US Energy Information Administration found that the low-cost steps were limited or mostly already being taken. Second, we have backed out imports of light oil, especially from West Africa, although the ability to back out more light oil imports to the East Coast is challenged by the higher shipping costs of Jones Act tankers to move domestic crude to East Coast refineries. And, third, we have been exporting vastly more crude oil where allowed (almost entirely to Canada) and refined petroleum.

As US production grows, however, these existing outlets become more and more limited. US domestic commercial crude storage levels just reached an 85-year high. There is uncertainty about exactly when the “point of saturation” will be reached at which US crude prices become significantly discounted relative to the world price because of domestic processing limits. Refinery consultants Turner Mason have estimated the “point of saturation” will be reached when US production reaches between 10 and 11 million barrels per day. EIA noted, however, in its new study that higher-cost options to process light oil requiring significant investment were challenged not only by costs, but also by policy uncertainty about whether current crude oil exports restrictions will be relaxed.

The exact point at which this limit is reached depends on factors including how quickly US production grows and the ability of the US refining sector to adapt to that growth. In response to the recent collapse in oil prices, US production growth has slowed dramatically and will likely soon peak for 2015 at around 9.4 million barrels per day before picking up again in 2016. EIA’s long-term forecast projects US crude oil production will peak at 9.6 million barrels per day.

Although the oil price crash has slowed the growth of US oil supply, the oil export issue is still relevant, however. First, production may rebound faster than we expect; indeed, actual production has consistently surpassed EIA projections in recent years. Second, the impact of the oil export ban may increasingly be seen seasonally and temporarily as refineries shut down for maintenance or other reasons (e.g., labor strikes or fires), causing the US price to fall further below the world price as US refining demand drops. Indeed, in early 2015 and late 2013, the price of US crude became sharply dislocated from world prices for a variety of reasons, and this seasonal weakness would likely have been reduced if US producers could export to meet global demand. Third, US production levels are more sensitive to any sort of price discount at today’s lower prices in the \$50s or \$60s per barrel than at \$100 or more, given that we are much closer to the break even costs now for many shale wells. Finally, it takes the policy process some time to build consensus and change existing laws



or regulations, so it makes sense to prevent a market problem from developing rather than wait to respond to one.

WHAT ABOUT GASOLINE PRICES?

Perhaps the key issue, substantively and politically, in the debate about whether to allow unrestrained crude exports has been the perception that such a move would push up prices at the pump for consumers. **Both economic theory and empirical evidence, however, suggest refined product prices would not rise, and may even fall slightly, if export restrictions were removed.**

Gasoline and diesel produced in the United States can be freely traded in the global market, and thus the price at the pump is determined by the world price of refined petroleum. If the US price of crude is discounted, that lowers the cost to refiners of buying crude oil to produce gasoline, diesel and other products. But there is no reason why the domestic refiners would pass those savings along to consumers. US refiners will have access to global product markets and the ability to sell gasoline and diesel abroad at prevailing global prices.

Indeed, this is exactly what's occurred over the past few years. Between 2011 and 2013, Midwest refiners paid 16 percent less, on average, per barrel of crude than East Coast refiners, thanks to infrastructure bottlenecks between the US Midcontinent and the East Coast. Refiners in the Rocky Mountain region paid 22 percent less. Yet the price of gasoline sold by Midwest and Rocky Mountain refiners was only 1 percent and 1.4 percent lower than East Coast refiners over this period respectively. Lower crude costs improved refiner profitability but did not lower prices for consumers.

The finding that unrestricted oil exports would not raise pump prices is consistent with studies by the Brookings Institution, Resources for the Future, Rice University's Baker Institute, and the Energy Information Administration, among others. To the extent lifting the oil export restrictions boosts US production relative to what it would otherwise be by allowing US producers to sell at a higher price, and to the extent that increased supply is not offset by production cuts elsewhere in the world, the increased global supply will push down gasoline prices. In our study, we estimated the reduction in gasoline prices to be between zero and 12 cents per gallon, although I would again stress the magnitude is highly uncertain and may well be small.

Unrestricted crude exports also allows US supply to respond better to global oil market signals. This consideration may be even more relevant given the nature of US shale oil and OPEC's November 2014 decision not to reduce production but to let oil prices fall, forcing higher cost producers like the US to cut production instead. Because of shale oil's very steep decline rates relative to conventional oil sources, it can go offline very quickly when producers idle rigs in response to lower prices. Indeed, the rig count has fallen in half, and US production may have stopped growing for 2015. But shale oil can bounce back very quickly too when prices rise. That means, assuming OPEC maintains its current policy, that US oil can be a new kind of "swing supply" in the global market. If the world oil price were to rise again into the \$70s or \$80s or beyond, **US supply could rebound quickly to slow the price rise and temper the concomitant rise in consumer pump prices**—but that US supply response may be impeded if producers have to sell at discounted prices.



THE ENERGY SECURITY CONSEQUENCES OF ALLOWING OIL EXPORTS

Allowing unrestricted exports would make the US more resilient, not less, to supply disruptions elsewhere in the world. Greater integration into global markets would make US oil supply more responsive to international market developments, mitigating the impact on American consumers and the US economy of production losses in other countries.

Today's oil market is very different than it was during the 1970s. Then, a disruption in contracted shipments could result in a physical shortage for the buyer because of a lack of strategic or commercial stockpiles or a spot market. Today, however, the oil market has become the largest and most liquid commodity market on earth. A supply disruption anywhere raises crude prices everywhere, incentivizing both additional sources of supply and greater conservation. Interdependence means that when crude or refined product markets are disrupted, the US can mitigate supply disruptions by accessing alternative sources of supply.

Oil trade also provides economic security benefits. Broadly speaking, oil price shocks impact the US economy in three ways. First, they increase business costs and reduce real household income. Second, they put upward pressure on prices economy-wide, which can result in tighter monetary policy. Third, as long as the United States is a net oil importer, oil shocks deteriorate the country's terms of trade and can result in large temporary increases in the country's current account deficit. To the extent lifting crude export restrictions increases US production, net US oil imports will decline. This is true even though gross imports increase as more light oil is exported and more heavy oil imported than would be the case were the export restriction to remain in place. In a recent report, the White House Council of Economic Advisers (CEA) found the "resilience of the economy to international supply shocks—macroeconomic energy security—is enhanced by reducing spending on net petroleum imports and by reducing oil dependence." This is due both to the smaller terms of trade penalty from an oil price shock, and the fact that more of the increase in oil producer revenue stays within the United States.

At the same time, if lifting crude export restrictions results in a decrease in gasoline and other refined product prices, US oil demand will grow, exacerbating the impact of a given change in prices on household incomes, business expenses and overall inflation. Given the magnitude of the potential refined product price decline that would be expected, the impact on overall US oil demand would be small, however, so overall net imports would still decline.

TRADE CONSIDERATIONS

Lifting crude export restrictions is **consistent with America's longstanding commitment to free and open markets**, would **enhance US credibility** in current and future trade negotiations, and avoid creating a **precedent that could harm US trade policy objectives** down the road.

Since the founding of the postwar global trading system, the United States has been a leading proponent of open trade. For most of that time the United States was a net energy importer, so access to international energy and natural resource supplies was an important trade policy priority. The United States has also traditionally supported open international trade on the principle that it



improves economic welfare both for importers and exporters. With the surprise turnaround in US oil production and trade balance, and with crude export restrictions beginning to distort trade outcomes, America's commitment to free trade principles is now being put to the test.

The US has won cases in the World Trade Organization against China and other countries when these countries tried to defend commodity export restrictions using one of the many exceptions in international trade law. Should the United States choose to maintain current crude export restrictions, it could be in the position of having to make the same arguments that it successfully defeated in these other trade disputes. The precedent established in those cases would make a US defense more challenging. Were the United States to succeed in arguing for exceptions, it would create a **precedent that could limit the ability of the US to challenge other countries' export restrictions** in the future.

Equally important is assessing the implications of maintaining US export restrictions on US credibility in other **US trade policy priorities**, such as the current negotiations with Europe over the Transatlantic Trade and Investment Partnership (TTIP). In the negotiations over the TTIP, the Europeans have argued for the inclusion of an energy chapter and the elimination of US energy export restrictions. A leaked EU document noted how maintaining export restrictions might undermine joint efforts to combat export restrictions in China and elsewhere: "Combatting resource nationalism, together vis-à-vis third countries while at the same time allowing for export restrictions to exist between us sends the wrong message to our partners and offers some of these resource-rich countries a great opportunity to interpret trade rules in a way which is detrimental to our economies."

GEOPOLITICAL CONSIDERATIONS

Increased US crude production can **weaken the economic power, fiscal strength and geopolitical influence of other large oil producing countries**. Additional supply on the market also increases competition and reduces any one country's ability to leverage its resources to gain geopolitical influence. Reducing foreign producer's oil revenue also risks negative geopolitical consequences, however, if it leads to greater instability in these regions. The magnitude of any export-driven impact is small, however, relative to recent oil market developments.

Also important for US foreign policy are the **current crude trade relationships retained and new ones created** if export restrictions are modified or lifted. If export restrictions were eased, net imports would be lower, but total gross imports and exports would be higher as refiners import crude best suited to their needs and producers export other types of crude better suited to refiners abroad. While it should theoretically make little difference where a country buys its crude from given the size and liquidity of the global market, specific bilateral trade flows can have significant geopolitical implications in practice. Beyond the direct economic gains of trade, trade generally improves bilateral relations more broadly, opens new lines of communication and reduces the odds of conflict.

Permitting exports also has the potential to **boost US diplomatic leverage** in certain circumstances, such as the future application of sanctions or pursuit of other objectives. The application of sanctions against Iran, for example, depended critically on US diplomacy to persuade



Iran's oil buyers to reduce purchases and diversify their sources of supply. Building support to sanction other oil-producing countries in the future can be made more challenging by a US refusal to supply the global market with our own oil.

In an extreme scenario, such as global military conflict that results in widespread physical scarcity of oil, the US would always have the ability to halt crude oil exports if it is in the country's national interest to do so. Preserving crude oil export restrictions purely as a hedge against such a low-probability event is high-cost insurance.

ENVIRONMENTAL CONSIDERATIONS

While an increase in US crude oil production resulting from a modification or removal of current export restrictions has economic, security, and foreign policy benefits, it also raises important environmental concerns.

One environmental concern has been about the **local impact of increased shale development**. Indeed, development of oil and gas from shale and other tight formations poses environmental risks that must be managed at both the state and federal level. Regardless of whether the US freely exports oil, however, US oil and gas production is poised to grow sharply in the years to come, and so it is critical that states and the federal government continue to improve the level of regulation and enforcement independent of any export policy changes.

The other concern is that increased oil exports will increase greenhouse gas emissions. It is true that **to the extent oil exports boost US oil production and thus lower global oil prices, oil demand and associated carbon emissions will also rise**. Trade barriers are not an effective or appropriate response to the very real and important concerns about climate change, however.

I want to be clear: I support robust government action to address climate change. It is critically important that all nations be moving more aggressively to combat the potentially severe consequences of climate change. But **concerns about climate change are best addressed with policies targeted at that problem**. Given the economic and security benefits, **restricting oil trade is a very costly way to achieve modest greenhouse gas benefits** relative to alternatives like pricing carbon or even the EPA's power plant rules, fuel economy standards, or reducing methane emissions. It is critical that more aggressive policy actions in other areas be taken to demonstrate that boosting domestic supply, for example by allowing exports, can be consistent with meeting our climate objectives. Moreover, these other measures would deliver emissions reductions at home, while the increased emissions from allowing US oil exports would largely come outside the US.

Many government actions may raise carbon emissions, but they must be judged by weighing those costs against their benefits. For example, steps to raise GDP growth would increase energy use and emissions. Similarly, achieving a deal that prevented Iran from acquiring a nuclear weapon in exchange for allowing it to resume oil sales would likely lower oil prices and increase associated oil use and emissions. From a cost-benefit standpoint, both actions would still be desirable outcomes, notwithstanding their climate impacts. Restricting oil exports is not a cost-effective way to reduce greenhouse gas emissions.



CONCLUSION

Today's oil market looks very different than it did in the 1970s when current crude oil export restrictions were first put in place. At that time, the United States had adopted domestic price controls to combat inflation, and crude export restrictions were necessary to make those price controls effective. While price controls have long since fallen away, crude export restrictions remain. While the magnitude and timing of the impact of easing the export restriction is uncertain, particularly given the recent oil price collapse, the direction is clear: allowing US oil exports will boost US oil supply and economic activity, along with resilience to supply disruptions, credibility in the trade realm, and geopolitical influence. While trade restrictions are not an appropriate or cost-effective way to reduce greenhouse gas emissions, it is critical that more aggressive policy actions be taken to address climate change. **The current statutory restrictions on oil exports are a legacy of a bygone era that doesn't reflect today's energy reality. On economic, security and geopolitical grounds, they should be lifted.**