

# Economic Letter

## Crude Oil Export Ban Benefits Some ... but Not All

by Michael D. Plante

**ABSTRACT:** Lifting the U.S. ban on crude oil exports would alleviate a growing glut of oil at the Gulf Coast refineries and should eventually reduce retail gasoline and diesel prices, benefiting U.S. consumers.

**R**apidly expanding U.S. shale oil production has dramatically changed the nation's energy landscape in a few short years.

While exports of refined petroleum products have skyrocketed, suddenly ample supplies of crude oil have raised fears of a U.S. oil glut. The reason: a federal ban on crude oil exports that was imposed after the 1973 oil embargo.

Localized oversupply—the result of transport constraints—has already depressed regional crude oil prices relative to global rates. As pipeline infrastructure reaches new production areas, more crude is flowing to the Gulf Coast, where more than 50 percent of U.S. refining capacity resides. But refiners there lack the ability to process all the newly discovered oil, raising the specter of an oversupply that could persistently depress U.S. oil prices. Indeed, oil in the Gulf has already begun selling at small discounts to global prices (*Chart 1*).<sup>1</sup>

If the export ban were not in place, large and persistent discounts would not occur because surplus oil would flow away from the Gulf to destinations where it would fetch a higher price and U.S. crude prices would eventually rise to global levels. The costs and benefits of the price increase wouldn't be evenly distributed. Some U.S. refiners, now able to purchase crude at discounted prices, would be nega-

tively affected because their costs would increase. But U.S. oil producers, landowners who collect royalty payments and governments that tax oil production would benefit from higher crude prices.

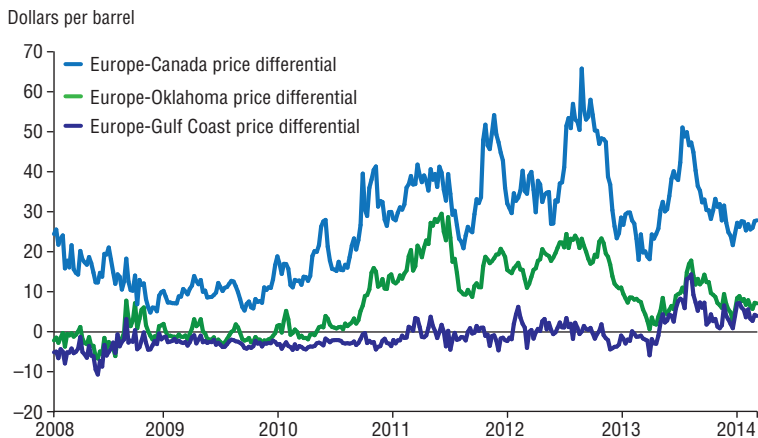
U.S. consumers also stand to gain from lower retail fuel prices. This may sound counterintuitive—how can fuel prices fall if crude oil becomes more expensive? But rising oil prices in the U.S. do not necessarily translate into higher gasoline and diesel prices. Those refined product prices are determined in the global market, whereas crude oil prices reflect distorted local market conditions in the U.S. For example, while refiners in the Midwest have recently been able to purchase oil at significantly cheaper prices than their counterparts on the East Coast, wholesale gasoline and diesel prices don't reflect that cost difference (*Chart 2*).<sup>2</sup>

Moreover, analyses in several export-ban studies suggest that higher U.S. oil prices would spur greater drilling for oil and cause U.S. production to grow at a rate faster than if the export ban remained.<sup>3</sup> This would increase the supply of oil available on the world market and lead to greater production of gasoline and diesel fuels, lowering their prices and benefiting U.S. consumers.

On the whole, the export ban affects different groups in different ways, as would its removal. Understanding how the shale

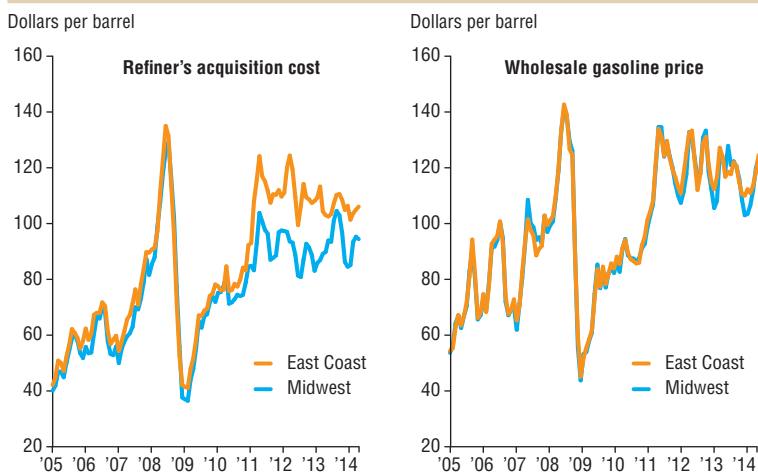
▶ Amid the growing supplies of light crude, the export prohibition is likely to keep U.S. crude oil prices depressed relative to global prices.

**Chart 1** Crude Oil from U.S. Interior Sells at a Discount (Price premium for crude oil in Europe)



SOURCES: Bloomberg; author's calculations.

**Chart 2** Cheaper Oil, Similar Gasoline Prices in U.S.



SOURCES: Energy Information Administration; author's calculations.

boom has impacted U.S. oil production, oil prices and the market for refined products provides insight into how the benefits and costs of the export ban are distributed, and why there are calls for ending it.

### Production in Unexpected Places

Oil production has boomed in the U.S., particularly in North Dakota and Texas, due to hydraulic fracturing and horizontal drilling (*Chart 3*). Oil is typically transported through pipelines, but because output grew so unexpectedly, pipeline capacity has been insufficient to move all the oil to U.S. refineries. As supply overwhelmed demand in local areas, crude oil prices in certain parts of North America

became depressed relative to international oil prices.

Logistical constraints and bottlenecks first affected areas closest to the boom sites. Since 2010, West Texas Intermediate (WTI) crude oil has sold in Cushing, Okla., at a significant discount to Brent crude oil sold in Europe. Canadian crude has traded at even steeper discounts. Even so, prices of crude oil of similar quality to WTI were not significantly discounted along the Gulf Coast until late 2013.

### Crude Flows Toward Higher Prices

When local oil sells for significantly less than international prices, an opportunity to buy low and sell high emerges. In

response to such an incentive, oil has been transported toward coastal regions where refineries tend to be located.

Due to the initial lack of pipelines, unconventional methods of shipping crude oil, such as train and barge transport, have become more common. However, an expansion of pipeline capacity is ongoing.

This situation should resolve itself given enough time. Sufficient pipeline capacity would eventually move crude oil to the Gulf Coast and other refinery sites. Any price differences would reflect costs of transporting the oil from, say, North Dakota to the Gulf Coast.

## Wrong Kind of Crude

There are many different types of crude oil, and refineries are generally configured to process specific kinds. In the last decade, Gulf Coast refiners made significant investments to process “heavy” crudes, which are dense, with high viscosity. They typically require more processing than other types of oil but are generally cheaper to purchase. However, crude oil from shale is predominantly “light” crude oil, which has lower viscosity and requires less processing.<sup>4</sup>

Refiners on the Gulf Coast can and do process light crudes, but they have limited capacity to do so. As a result, the initial impact of the oil boom has been a sharp decline in U.S. light crude oil imports—almost 60 percent lower in 2013 than 2010 (*Chart 4*). Preliminary 2014 data suggest a further reduction of light oil imports.

Current forecasts call for more U.S. crude oil production growth, mostly involving the light variety. With U.S. refiners already operating at very high utilization rates and imported oil rapidly being crowded out, the supply glut first seen in the middle of the U.S. is moving to the Gulf Coast. If the export ban were not in place, this would not be a problem. The extra oil would be shipped to other countries with the appropriate refining capacity for light crude. Crude oil prices in the U.S. would then reflect global prices.

## Recent Ruling on Condensates

In late June, the Commerce Department gave permission to two Texas companies to export condensate, a type of

hydrocarbon that’s “ultralight” oil. The companies will process the condensate to make it safe for transport and storage, and thus it will be regarded as a refined oil product. The federal ruling hinges on the fact that the export ban does not apply to refined products; only the export of unprocessed crude oil is prohibited.

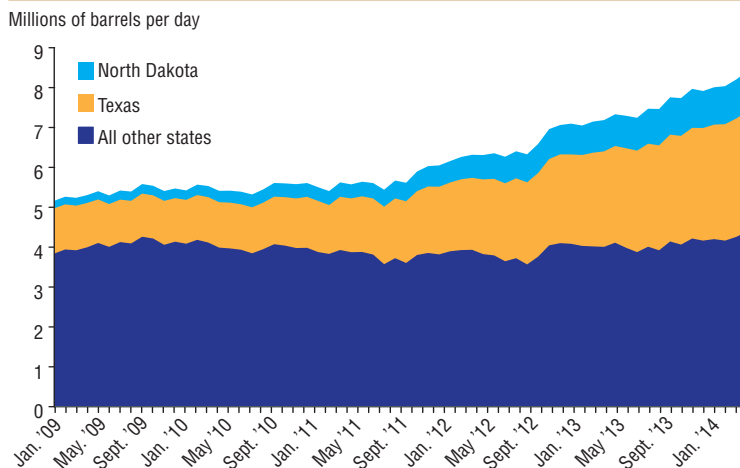
Many refineries do not view condensates and crude oil, such as WTI, as close substitutes for one another. In a sense, they are parts of two related but distinct markets. The ability to export will allow condensate producers to command higher prices for their output. But the decision itself will probably have little impact on the growing oversupply of light crude oil.

## Benefit, Harm of Light Crude Glut

Amid the growing supplies of light crude, the export prohibition is likely to keep U.S. crude oil prices depressed relative to global prices. This has implications for who benefits or is hurt by the ban. Those most affected include oil producers, refiners and consumers.

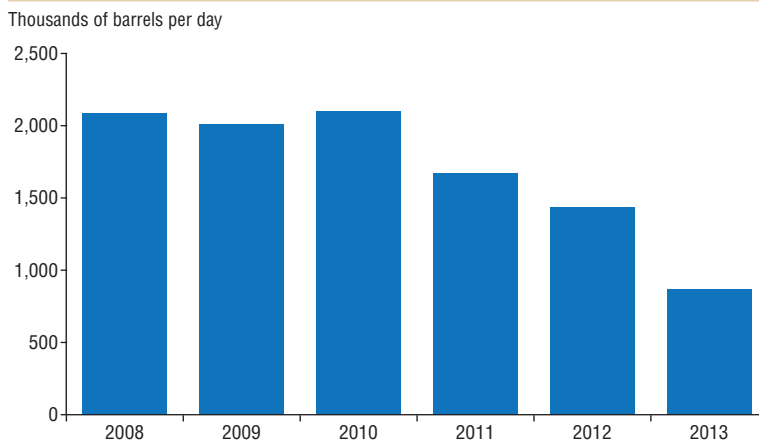
Prime beneficiaries of the ban are U.S. refiners that can purchase crude oil at discounted prices. There is no prohibition on exporting petroleum products such as gasoline and diesel. This helps prevent gluts of those fuels and ensures that prices for gasoline and diesel do not vary significantly across regions (after accounting for taxes and distribution costs).<sup>5</sup>

## Chart 3 U.S. Crude Oil Production Booms



SOURCE: Energy Information Administration.

## Chart 4 Imports of Light Crude Oil into U.S. Plummet



SOURCES: Energy Information Administration; author's calculations.

Lower oil input costs therefore show up in refiners' profit margins. Indeed, a recent federal Energy Information Administration study shows that lower oil costs have helped make North American refineries significantly more profitable than their counterparts elsewhere the past few years (Chart 5).<sup>6</sup>

Oil producers, conversely, are negatively impacted because the prices they receive are lower than if the ban were not in place. Lower prices also have negative implications for governments, local or otherwise, that tax crude oil production and for landowners who collect royalty payments on the oil produced.

For those parties, the negative implications could be larger over the longer term. Lower crude oil prices would help discourage oil exploration, limiting how much U.S. production will grow. This could

be particularly important for those in the areas affected by the shale boom because shale production tends to be higher cost, or "marginal," and therefore may be more responsive to price.

Consumers also may be negatively affected if the export ban remains in effect. Given that the prices of gasoline and diesel are determined in a world market, consumers see few, if any, of the benefits that flow to U.S. refiners. To the extent that the ban discourages drilling, this limits the potential supply of oil available to be processed into gasoline and diesel, placing upward pressure on retail fuel prices.

### Eliminating Ban's Distortions

Removing the export ban would eliminate a variety of marketplace distortions by increasing the price of crude oil in the interior U.S. to better reflect global levels, lead-

ing to a more efficient economic outcome. While this would adversely impact certain U.S. refiners, it would benefit other market participants.

Over the longer term, U.S. crude oil producers would receive higher prices. In response, they would produce more oil than they would have if the ban were in place. With greater amounts of oil available globally, more gasoline and diesel would be produced, reducing their prices and benefiting U.S. consumers.

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### Notes

<sup>1</sup> In general, transport constraints have been more severe farther inland, causing the differentials to be larger toward the interior of the U.S. and into Canada.

<sup>2</sup> For more details on this phenomenon, see "Crude Behavior: How Lifting the Export Ban Reduces Gasoline Prices in the United States," by Stephen P.A. Brown et al., Resources for the Future, March 2014.

<sup>3</sup> See "U.S. Crude Oil Export Decision," IHS Global Inc., May 2014, and "The Impacts of U.S. Crude Oil Exports on Domestic Crude Production, GDP, Employment, Trade, and Consumer Costs," ICF International, March 2014.

<sup>4</sup> Further distinctions can be made between types of crude oil. To keep the discussion simple, types of oil are simply classified as "heavy" or "light." For more information, see pages 4 and 12 in "U.S. Crude Oil Export Policy: Background and Considerations," by Phillip Brown et al., Congressional Research Service, March 2014.

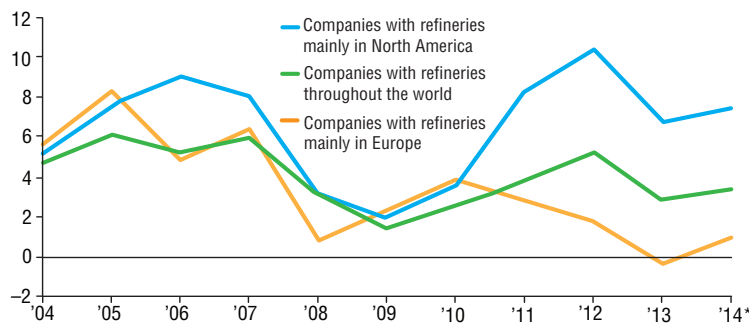
<sup>5</sup> See note 1.

<sup>6</sup> See "Lower Crude Feedstock Costs Contribute to North American Refinery Profitability," Energy Information Administration, Today in Energy, June 5, 2014.

## Chart 5

### North American Refiners Achieve Greater Profitability

Earnings per barrel processed (2013 dollars)



\*2014 data through first quarter.

SOURCE: Energy Information Administration based on Evaluate Energy database.

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