

# Food vs. Fuel? Impacts of petroleum shipments on agricultural prices.

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## Abstract

Shipments of crude oil by rail have grown dramatically since 2010. Although shipments of oil still comprised less than 2% of overall rail traffic, oil's share of rail freight traffic in regions of the upper great plains has grown much larger. By 2014, oil shipments constituted over 50% of rail car traffic originating in North Dakota. Three major grain crops - wheat, corn, and soybeans - constituted well over half of the remaining share of traffic. The confluence of growing demand for oil shipments and increasing crop yields in these regions has brought claims of agricultural commodities stranded behind transportation bottlenecks, unable to reach markets.

In this paper we examine the relationship between shipments of oil by rail and agricultural commodities. We focus on several aspects of this question. We first examine the impact that rail shipments of oil have had on both local and regional prices of key agricultural commodities such as wheat and corn. We also explore potential mechanisms for these price effects, including shipper pricing and the cost of availability of grain rail cars.

We examine price spreads between the silos that constitute regional storage and shipping hubs and major trading hubs such as Minneapolis and Chicago. From 2012 to 2014, shipments of oil by rail in North Dakota increased from approximately 9 to 24 thousand cars per month while the average spread in wheat prices increased from \$1.50 to \$2.64 per bushel. Controlling for diesel prices, seasonal and spatial effects, we find a significant relationship between oil shipments and grain price spreads, although the impact is only economically meaningful for wheat. Increasing oil shipments by 10 thousand cars per month is associated with an increase of \$.50 per bushel in wheat price spreads. The impacts of oil shipments on corn and soybean spreads were also statistically significant but an order of magnitude smaller. Agricultural price impacts were not confined to pricing points on rail lines that experienced substantial increases in oil-by-rail traffic.

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