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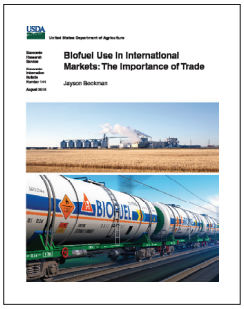

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Biofuel Use in International Markets: The Importance of Trade

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What Is the Issue?

Between 2001 and 2013, global biofuel production grew rapidly, driven by a combination of rising gasoline prices, falling prices of biofuel inputs, and policies mandating use of renewable fuels. The same factors that led to production increases also led to the expansion of global trade in biofuels. Among countries that produce biofuels, some have emerged as major exporters, such as the United States and Brazil, and others have found it necessary to import biofuels to help fulfill their renewable fuel mandates, such as the EU. In addition, some countries trade similar products with each other (known as intra-industry trade), while several countries have taken steps to restrict biofuel trade with certain countries. Since 2011, the United States has emerged as the leading ethanol exporter; however, declining gasoline prices in the last quarter of 2014 highlights potential challenges to future exports.

This study provides an overview of the growth of the global biofuels industry, focusing on the favorable market conditions and policies that made growth possible. Biofuel trade is examined in detail, with the goal of helping public and private decisionmakers understand the current state of this important topic. The study examines factors behind intra-industry trade in biofuels (especially ethanol) and also the market fundamentals and policy changes that can affect U.S. biofuels trade going forward.

What Did the Study Find?

Global biofuel production grew rapidly from 2001 to 2013. For the largest producers—the United States, Brazil, and the EU—biofuel production increased 462 percent; however, most of the rapid growth was before 2011. Indeed, production of biofuels can broadly be examined over two phases. In the first phase (pre-2011), biofuel production and consumption rapidly expanded; in the second phase (post-2011), biofuel production continued to grow but at a much slower rate. Moderating prices, along with the saturation of the corn ethanol market in the United States, increased the importance of energy policies as a way to help sustain biofuel production and consumption during this second phase.

The amount of biofuels trade increased substantially during this second phase due to favorable market conditions and energy policies mandating use of renewable fuels. In particular, the United States and Brazil trade physically similar biofuel products with each other. Several other countries beyond the biggest three producers have experienced rapid growth in biofuel (especially biodiesel) production. Among these countries, Argentina and Indonesia have become major exporters. This increase in total global fuel trade has occurred despite the EU

placing trade barriers post-2011 to biofuel imports from the major biofuel producers (e.g., the United States, Brazil, Argentina). These anti-dumping duties essentially prohibit any imports from those countries.

The ethanol blend wall in the United States, and an increase in demand for biofuels from other countries, helped the United States emerge as a net exporter of ethanol for the first time in 2010, with net exports positive each year since. Indeed, the United States has become the world's largest exporter of ethanol. U.S. ethanol production and exports both remained strong in the face of falling gasoline prices in 2014 due to interactions of supply- and demand-side factors; production capacity beyond domestic policy requirements and strong export markets helped make high exports possible. In addition, U.S. imports of ethanol in 2014 fell to their lowest amounts in years.

Along with market forces, policies can affect future U.S. biofuel trade. If the blending rate in Brazil continues to increase (as it has recently), less Brazilian ethanol will be available to compete with the United States on the global market. At the same time, Brazil could continue to import U.S. ethanol to help meet its mandate. In addition, U.S. biofuel policies could affect the future of U.S. biofuel trade. For example, reducing the amount of ethanol that can be derived from corn in the U.S. renewal fuel mandate could potentially lead to reduction in U.S. ethanol production infrastructure in the long run, which could limit the availability of ethanol for exports. Although in the short run, reducing the mandate could actually increase the amount available for export markets to make use of the already existing infrastructure. Additionally, if the scheduled future increases in the U.S. mandate for advanced biofuel are not met by increased domestic production of advanced biofuels (and are not waived), the increase in the mandate amounts will need to be met with imports, such as sugarcane-based ethanol from Brazil.

How Was the Study Conducted?

This study examines historical trends to characterize biofuel markets in the United States, Brazil, and the EU, which are the major participants in global biofuel production and trade. Because actual changes in the biofuels sector are a result of complex interactions among many policy and market influences, this report was developed to offer an overview of many of these factors, and, as a result, relies on several data sources. ERS data on global commodity prices show changes to biofuel feedstock prices. Biofuel production, consumption, and trade data from the U.S. Energy Information Administration are used to detail the changes to the U.S. biofuel sector. USDA's Agricultural Baseline Projections provide some insights on possible future paths for biofuel markets. This study also draws heavily from individual country biofuel reports from USDA's Foreign Agricultural Service.