



Brazil Modal Share Analysis for Corn and Soybeans: 2010-19 (Summary)

Delmy L. Salin

This is a summary of “Brazil Modal Share Analysis for Corn and Soybeans: 2010-19” by Thiago Guilherme Péra, José Vicente Caixeta-Filho, professor at the University of Sao Paulo, Luiz de Queiroz College of Agriculture, ESALQ-LOG Group, Brazil, and Delmy L. Salin Ph.D. at USDA. This paper received funding from USDA’s Agricultural Marketing Service (AMS) through cooperative agreement number 20-TMTSD-BZ-0001. The opinions and conclusions expressed are the authors’ and do not necessarily reflect the views of USDA or AMS. The full report is available online at https://esalqlog.esalq.usp.br/Brazil_modalshare_USDA-ESALQ2020.pdf.

WHAT IS THE ISSUE?

Brazil is a country with continental dimensions and immense heterogeneity in transport infrastructure. The improved infrastructure has significantly contributed to higher production of corn and soybeans in recent years, totaling over 200 million tons in 2017. This boom in production has exerted significant pressure on the demand for logistics infrastructure, especially in major agricultural producing regions.

Historically, Brazil grain shipments abroad have relied heavily on roads to bridge the long distances between major production regions and Brazilian ports. In the last decade, Brazil’s transport infrastructure has received major overhauls with the expansion and consolidation of new transport corridors, as well as the country’s use of new railways and waterways for exporting corn and soybeans.

The purpose of this study is to analyze the modal share changes for the movement of soybeans and corn in Brazil (2010-19).

HOW WAS THE STUDY CONDUCTED?

The modal share analysis consisted of accounting for rail and barge movements, production, and export information from a developed database to generate three types of indicators related to corn and soybean transport movements in Brazil: truck, rail, and barge. We analyzed the modal shares both for the total tonnage and for the export and domestic market destinations.¹

¹ In this study, short-haul trucks are not considered as part of the modal share to avoid double counting. In Brazil, these shipments refer to the average distance of 440 miles (707 kilometers (km)) from the farm to rail and barge terminals.

We built and analyzed a database to illustrate what we called the “Logistical flows of corn and soybean in Brazil,” by presenting rail and barge transport characteristics in the country. This study is based on secondary 2010-19 data from the National Land Transport (ANTT), National Water Transport Agency (ANTAQ), National Supply Company (CONAB), and COMEX-VIS, Ministry of Economy (Brazil).

WHAT DID THE STUDY FIND?

Brazil’s revamped transportation system is a more balanced one, leveraging all major modes (truck, barge, rail, and ocean vessel) and resembling the U.S. system. However, a number of challenges persist, including the long distances between major production regions and terminals for barge and rail, as well as *limited* rail and inland waterway infrastructure capacity. Still grappling with these challenges, Brazil continues to depend heavily on truck transportation to ship grain to major destinations.

In the last decade, the use of barge transportation increased for shipping corn and soybean exports to major ports. Most corn and soybeans for domestic consumption are shipped by truck, with an average distance of 574 miles (357 km) from farms to any destination other than rail and barge terminals. Railways haul corn an average distance of 782 miles and soybeans, 651 miles. On average, barge corn shipments travel 581 nautical miles (nm) and soybeans, 535 nm.

The main results for Brazilian *corn* for the analyzed period, 2010-19, show the following:

- Trucks shipped most corn from the farm to major destinations, accounting for nearly 69 percent of total movements in 2019, followed by rail (21 percent) and barge (10 percent).
- Truck market shares declined by nearly 15 percentage points, from 84 to 69 percent; rail increased 6 percentage points, from 15 to 21 percent; and barge increased significantly from 1 percent to nearly 10 percent.
- Rail shipped most corn to major export facilities, representing nearly 50 percent of the total corn exported in 2019, followed by truck (31 percent) and barge (19 percent).
- Barge gained a significant market share from about 3 percent to 20 percent, at the expense of rail, which fell from nearly 78 percent in 2010 to 50 percent in 2019. Truck also gained 11 percentage points of market share from 20 to 31 percent.

The main results for Brazilian *soybeans* for the analyzed period, 2010-19, show the following:

- Trucks shipped most soybeans from the farm to major destinations, accounting for 67 percent of total movements in 2019, followed by rail (24 percent) and barge (9 percent).
- Truck market shares declined by about 8 percentage points, from 75 to 67 percent; rail increased about 4 percentage points, from 20 to 24 percent; and barge also increased about the same from 5 to almost 9 percent.
- Trucks shipped most soybeans to major export facilities, representing 49 percent of the total soybeans exported in 2019, followed by rail (38 percent) and barge (13 percent).
- Barge and truck gained market share at the expense of rail, which fell nearly 9 percentage points—from 47 percent in 2010 to 38 percent in 2019. Barge shipments increased nearly 5 percentage points, from 8 percent to nearly 13 percent. Truck shipments increased 4 percentage points, from 45 percent to 49 percent.

PREFERRED CITATION

Péra, Thiago G., Jose V. Caixeta-Filho, and Delmy L. Salin, 2021. Brazil Modal Share Analysis for Corn and Soybeans: 2010-19. University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz,” Brazil (ESALQ/USP). Web: https://esalqlog.esalq.usp.br/Brazil_modalshare_USDA-ESALQ2020.pdf or <http://dx.doi.org/10.9752/TS310.02-2021>.

Tractor wheel icon: ID 33434254 © Tribalium | Dreamstime.com

Photo credit: USDA

USDA is an equal opportunity provider, employer, and lender.