

## TRANSPORTATION SATELLITE ACCOUNTS: A NEW WAY OF MEASURING TRANSPORTATION SERVICES IN AMERICA

Transportation economists have long understood that transportation expenses reported by nearly all industry sectors significantly understate actual transportation expenses incurred. The primary reason for these underestimates is the lack of data on transportation provided “in-house” by industry. Until recently, this problem was generally ignored by both data providers and data users. Improved estimates of these data can have important implications for transportation, economic development, and trade policy.

In 1999, the U.S. Bureau of Transportation Statistics, in collaboration with the U.S. Bureau of Economic Analysis, published *Transportation Satellite Accounts: A New Way of Measuring Transportation Services in America*. The foundation for these estimates is the U.S. input-output accounts (1992 basis) maintained by the Bureau of Economic Analysis. Separate data sources on energy consumption, vehicle use, employment by occupation, etc. are used to build the Transportation Satellite Accounts on the input-output accounts’ foundation.

The report presents the results of a joint effort to estimate the amount of truck and bus transportation services consumed in-house by 100 industry groups representing the entire U.S. economy. The data developed is also used to estimate the amount of truck and bus transportation services consumed in-house by commodity (including both

goods and services). The (edited) *Overview* of this report is presented below.

### Overview

The magnitude of transportation services has long been underestimated in national economic data used by government and private sector decisionmakers. One reason is that, until now, national measures of transportation services only counted the value of for-hire transportation services. For-hire transportation services are provided by transportation firms to industries and the public on a fee basis, such as railroads, transit agencies, common carrier trucking companies, and pipeline companies. The sizable contribution of in-house transportation (i.e., transportation services that take place within nontransportation industries) was not explicitly identified, and their output was counted as part of nontransportation industries’ output, rather than transportation output.

Now, a new accounting tool, called the Transportation Satellite Accounts (TSAs), provides a way to measure both in-house and for-hire transportation services. ..[T]he TSAs reveal several important features concerning the relationship between transportation and the U. S. economy that have not been known before:

- Transportation services contributed about \$313 billion, or 5 percent of U. S. gross domestic product (GDP) in 1992, the latest year for which

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Economic Census data are available. The value added by in-house transportation services was about \$121 billion, compared with about \$192 billion contributed by for-hire transportation.

- Of the total value-added by transportation services, trucking accounted for 65 percent: 38 percent for in-house trucking and 27 percent for for-hire trucking. Air transportation and railroads accounted for 13 percent and 11 percent, respectively [with water, pipeline and other accounting for the remaining 10 percent].
- Agriculture, construction, and wholesale/retail trade are the most transportation-intensive sectors, counting both in-house and for-hire services. Although manufacturing is the most intensive user of for-hire transportation services (about 3 cents of for-hire transportation services per dollar of output) and consumes the most transportation services in absolute terms, it ranks below the agriculture, construction, and wholesale-retail trade sectors in overall transportation intensity because these industries rely more heavily on in-house services.
- Total transportation costs embodied in construction and agricultural products are larger than those embodied in manufactured products on a per-dollar basis. Therefore, transportation costs have a greater effect on agricultural product prices and markets than on manufacturing or mining products. A \$1 increase in the final demand for agricultural products will require 14.2 cents in transportation services, compared with 9.1 cents in the case of manufactured goods and about 8 cents for mining products.
- Transportation may have a greater influence on the competitiveness of U. S. products in international markets than previously thought, and the economic benefits of transportation infrastructure investments are larger than estimates based on for-hire transportation data alone.
- Transportation continues to play a key role in the economy, even as the economy shifts from a focus on manufacturing to a focus on services. The services sector, as defined in the national accounts, is the largest and fastest growing sector in the U. S. economy. According to the na-

tional accounts, demand for for-hire transportation generated from services sector growth between 1992 and 1996 was about \$6 billion. Analysis based on TSAs data shows that the services sector would have used an additional \$12 billion of in-house transportation to support this growth.

Although the TSAs demonstrate that transportation services command a much larger role in the economy than previously understood, the picture is still incomplete. Some in-house transportation services, such as the use of corporate aircraft and automobiles and private railcars and barges, have not yet been measured.

### Editor's Note

Finally, TSAs measure the consumption of transportation services in the production of goods and services for the economy. The resulting data should not be confused with estimates of the consumption of transportation goods (e.g., vehicles and fuel) and services (e.g., purchased air travel) by end users (e.g., consumers). In 1992, this transportation-related end user demand was about 11 percent of GDP.