JOBNAME: No Job Name PAGE: 1 SESS: 2 OUTPUT: Wed May 1 15:10:44 1996 / pssw02/ disk2/ economic/ tc92cf/ 26/ 01cvr

1992

Census of Transportation, Communications, and Utilities

TC92-CF-26

1993 COMMODITY FLOW SURVEY

Missouri

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

Acknowledgments

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Inquiries concerning this report should be addressed to the Commodity Flow Survey Branch, Services Division, Washington, DC 20233, telephone 301-457-2788 or 301-457-2114.

Publication Program

1992 CENSUS OF TRANSPORTATION, COMMUNICATIONS, AND UTILITIES

Publications of the 1992 Census of Transportation, Communications, and Utilities containing data on: transportation, communications, and utilities establishments; characteristics of trucks; and characteristics of commodity shipments are described below. The first results were issued in press releases. Final detailed statistics are issued in separate paperbound reports and compact disc-read only memory (CD-ROM).

Copies of the reports are available from the Superintendent of Documents, U.S. Government Printing Office, Post Office Box 371954, Pittsburgh, PA 15250-7954. Order forms for the specific reports or CD-ROM's may be obtained from any Department of Commerce district office, any Bureau of the Census State data center or business/ industry data center, or from Customer Services, Bureau of the Census, Washington, DC 20233-1900 or call 301-457-4100.

Final Reports

Truck Inventory and Use Survey—52 reports (TC92-T-1 to -52)

This series includes a United States Summary and a separate report for each State and the District of Columbia. Data cover the physical and operational characteristics of the Nation's private and commercial truck resources, such as the number of vehicles, major use, annual miles, model year, body type, vehicle size, fuel type, operator classification, engine size, range of operation, weeks operated, products carried, and hazardous materials carried. The reports show comparative statistics reflecting percent changes in number of vehicles between 1987 and 1992 for all characteristics.

1993 Commodity Flow Survey—141 reports (TC92-CF-1 to -52(P) and TC92-CF-N1 to -89)

This series includes a preliminary United States Summary, a set of National Transportation Analysis Region (NTAR) reports, a set of State reports (including the District of Columbia), and a final, more detailed United States Summary. Data cover the characteristics of commodity shipments initiated by establishments engaged in manufacturing, mining, wholesale, and selected retail, service, and auxiliary activities. The data include tons, ton-miles, average miles and value of shipments, by commodity and transportation mode. The NTAR and State reports include data on NTAR-to-NTAR and State-to-State commodity shipments, respectively. The final United States Summary includes more detailed commodity descriptions, data on containerized and hazardous materials shipments, and supplemental data on availability and use of transportation equipment and facilities.

Geographic area series—1 report (UC92-A-1)

The geographic area *Summary* report presents data for the United States and States for establishments with payroll for detailed kind-of-business classifications. Statistics on number of establishments and revenue are also shown for States and selected metropolitan areas (MA's) by kind of business.

For each State, the District of Columbia, and the United States, 1992 data are provided on revenue and employees per establishment and on revenue and payroll per employee. Comparative statistics showing percent changes in revenue and payroll between 1987 and 1992 also are shown for some kind-of-business classifications.

Nonemployer statistics series—1 report (UC92-N-1)

The *Nonemployer Statistics* report includes data by kind of business for all establishments, establishments with payroll, and establishments without payroll for the United States and States.

Subject series—2 reports (UC92-S-1 to -2)

The *Establishment and Firm Size* report (UC92-S-1) presents data for establishments with payroll, based on size of establishment, size of company or firm, and legal form of organization. Establishment statistics are presented by revenue size and by employment size; statistics for firms, by revenue size (including concentration by largest firms), by employment size, and by number of establishments operated (single units and multiunits). These data are presented for the United States.

The *Miscellaneous Subjects* report (UC92-S-2) presents data for the United States as a whole and, where feasible, for States and MA's for establishments with payroll. Data are provided for some kinds of business on major sources of revenue; purchased transportation; cost of purchased travel; revenue by class of customer; and other miscellaneous subjects.

Electronic Media

All data included in future printed reports will be available on CD-ROM. For the *Commodity Flow Survey* data, the CD-ROM may provide greater detail than the printed reports with respect to shipment distance, weight ranges, and origin to destination data for the geographic reports. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. In addition to CD-ROM's containing data from printed reports, there is a separate CD-ROM for the *Truck Inventory and Use Survey* which contains microdata information for each truck in the sample. The term microdata refers to the unaggregated records for the individual responses. The records are modified to avoid the possibility of identifying individual households or establishments. These products, with corresponding technical documentation, are sold by Customer Services, Bureau of the Census, Washington, DC 20233-1900.

OTHER ECONOMIC CENSUS REPORTS

Data on retail trade, wholesale trade, service industries, financial, insurance, real estate, construction industries, manufactures, mineral industries, enterprise statistics, minority-owned business enterprises, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Marianas. Separate announcements describing these reports are available free of charge from Customer Services, Bureau of the Census, Washington, DC 20233-1900.

JOBNAME: No Job Name PAGE: 1 SESS: 3 OUTPUT: Wed May 1 15:12:36 1996 / pssw02/ disk2/ economic/ tc92cf/ 26/ 05tpg

1992

Census of Transportation, Communications, and Utilities

TC92-CF-26

1993 COMMODITY FLOW SURVEY

Missouri

Issued May 1996

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau (this report excluded). Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

1993 Commodity Flow Survey

GENERAL

The 1993 Commodity Flow Survey (CFS) provides data on the movement of goods by mode of transportation. These are the first data of this type published by the Census Bureau since the 1977 Commodity Transportation Survey (see appendix A for a comparison to previous surveys). The data from the CFS are in great demand by transportation analysts and decision makers as they work towards improving the transportation infrastructure.

This report presents data at the State level. There are reports for each of the 50 States and the District of Columbia. The next series of reports to be released will be at the National Transportation Analysis Region (NTAR). There are 89 NTAR's representing one or more Bureau of Economic Analysis economic areas. A final United States Summary report, reflecting all revisions based on the geographic level analyses, will follow these reports.

COVERAGE

This sample survey produced measures of the movement of goods by major type of commodity shipped and mode(s) of transportation used.

The 1993 CFS covered establishments in mining, manufacturing and wholesale trade, and selected retail and service industries. The survey also covered selected auxiliary establishments (e.g., warehouses) of in-scope multiunit and retail companies. The survey coverage excluded establishments classified as farms, forestry, fisheries, oil and gas extraction, governments, construction, transportation, households, foreign establishments, and most establishments in retail and services.

The industries covered, as defined in the *Standard Industrial Classification Manual: 1987*[1] (SIC), are listed in the following table:

SIC code	Title
10, ex. 108	Metal mining (excluding metal mining services)
12, ex. 124	Coal mining (excluding coal mining services)
14, ex. 148	Mining and quarrying of nonmetallic minerals, except fuels (excluding nonmetallic minerals services)
20	Food and kindred products
21	Tobacco products
22	Textile mill products
23	Apparel and other finished products made from fabrics and similar materials
24	Lumber and wood products, except furniture
25	Furniture and fixtures
26	Paper and allied products
27, ex. 279	Printing, publishing, and allied industries (excluding service industries for the printing trade)
28	Chemicals and allied products
29	Petroleum refining and related industries
30	Rubber and miscellaneous plastics products
31	Leather and leather products
32	Stone, clay, glass, and concrete products
33	Primary metal industries
34	Fabricated metal products, except machinery and transportation equipment
35	Industrial and commercial machinery and computer equipment
36	Electronic and other electrical equipment and components, except computer equipment
37	Transportation equipment
38	Measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks
39	Miscellaneous manufacturing industries
50	Wholesale trade—durable goods
51	Wholesale trade—nondurable goods
596	Catalog and mail-order houses
782	Motion picture and video tape distribution

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

The source of the frame used for sampling in 1992 was the Standard Statistical Establishment List (SSEL) of separate business locations with paid employees, maintained by the Census Bureau. Establishments in these trade areas that had non-zero payroll in at least one quarter of 1991 were included in the sampling frame of approximately 800,000 establishments.

MILEAGE CALCULATIONS

The Center for Transportation Analysis (CTA) at Oak Ridge National Laboratory (ORNL) developed an integrated transportation network modeling system to compute shipment mileages for the 1993 CFS. To enable ORNL to compute mileages, the Census Bureau provided files containing ZIP Code origin and destination pairs for all reported shipments. To maintain confidentiality of reported data, no information other than ZIP Codes was provided. A ZIP Code pair was provided only once, regardless of the number of shipments that moved between ZIP Codes. To further protect confidentiality, the Census Bureau also included dummy pairs of ZIP Code origin and destination in the file sent to ORNL. The ORNL system used these five-digit ZIP Codes of the shipment's origin and destination, as input, and assumed the actual origin and destination points to be geographically located at the ZIP Code centroids. The system computed mileages, by mode, for all single modes and selected mode combinations for those ZIP Code pairs we sent to ORNL. The mileages between the origin-destination ZIP Code centroids were computed by finding the minimum impedance path over mathematical representations of the highway, rail, waterway, air, and pipeline networks and summing the lengths of individual links on these paths. Impedance is computed as a weighted combination of distance, time, and cost factors.

The ORNL mileage network is composed of individual modal-specific networks representing each of the major transportation modes — highway, rail, waterway, air, and pipeline. The links on these specific modal networks are the representation of line-haul transportation facilities. The nodes represent intersections and interchanges, and the access points to the transportation network. For each five-digit ZIP Code, dummy links are created from the ZIP Code centroid to the nodes on the network to simulate local access to the network with the objective being to locate the nodes on the network that are the closest to the given centroid. For the truck network, local access is assumed to exist everywhere; however, for the other modes this is not true. Before any dummy links are created for these modes, a decision is made about whether the mode is accessible from the ZIP Code region. For shipments involving more than one mode, such as truck-rail or rail-water, links connecting the individual modal networks are created to represent the transfer of freight between modes. A measure of link impedance is calculated for each link in each modal network based on various link characteristics for the specific mode. For example, the set of link characteristics for the highway network included divided or undivided roadway, degree of access control, rural or urban setting, type of pavement, number of lanes, degree of urban congestion, and length of the link. Link impedance measures are also assigned to the local access links. A minimum path algorithm is used to find the minimum impedance path between the origin ZIP Code centroid and the destination ZIP Code centroid. The cumulative length of the links on this path is the shipment distance.

DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the operations of an individual firm or establishment.

ABOUT THE DATA

This section summarizes key points about the data that will aid the user in analyzing and interpreting the tables contained in this report.

Coverage Considerations

The CFS captured data on shipments originating from selected types of business establishments located in the 50 States and the District of Columbia. The data do not cover shipments originating from business establishments located in Puerto Rico and other U.S. possessions and territories. Shipments traversing the U.S. from a foreign location to another foreign location (e.g., from Canada to Mexico) are not included, nor are shipments from a foreign location to a U.S. location. Imported products were included in the CFS at the point that they left the importer's domestic location for shipment to another location. Shipments that were shipped through a foreign territory with both the origin and destination in the U.S. were included in the CFS data. The mileages calculated for these shipments exclude the international segments (e.g., shipments from New York to Michigan through Canada do not include any mileages for Canada). Export shipments were included, with the domestic destination defined as the port of exit from the U.S.

The ''Coverage'' section of this report lists the SIC groups covered by the CFS. Other industry areas that were not covered, but may have significant shipping activity, include agriculture, government, and retail (other than warehouses and SIC 5961, Catalog and Mail-Order Houses). For agriculture specifically, this means that the CFS did not cover shipments of agricultural products from the farm site to the processing centers or terminal elevators (most likely short-distance local movements), but did cover the shipments of these products from the initial processing centers or terminal elevators onward.

Within mining, the CFS did not cover shipments from establishments in SIC 13, Oil and Gas Extraction. The majority of these establishments had undeliverable mailing addresses, and due to the mailout/ mailback approach for CFS, could not be included. **Therefore, the CFS data do not represent complete, or even primary, coverage of crude petroleum, or natural gas shipments.** The CFS data most affected by this, other than data for these specific commodities, are data for the pipeline and water modes, given that a significant percentage of the total tonnage moving by these modes are from crude petroleum and/ or natural gas.

Mileage Data for Pipeline Shipments

In the tables, we do not show ton-miles or average miles per shipment for pipeline shipments. For most of these shipments, the respondents reported the shipment destination as a pipeline facility on the main pipeline network. Therefore, for the majority of these shipments, the resulting mileage represented only the access distance through feeder pipelines to the main pipeline network, and not the actual distance through the main pipeline network. **Pipeline shipments are included in the totals for ton-miles and average miles per shipment.**

Average Miles Per Shipment

For our calculation of average miles per shipment (tables 1, 2, 4, 5, and 6) we excluded shipments of STCC 27, Printed Matter.

When transporting newspapers, magazines, catalogs, etc., there is great variation in the meaning of ''shipment''. A truckload of magazines traveling to a distribution point may be viewed as one shipment or, as each magazine will eventually be delivered to individual subscribers, thousands of shipments. To avoid overstating the impact of short distance shipments of products in STCC 27, we excluded shipments of STCC 27 from our calculation of average miles.

All other variables in the tables (value, tons, and ton-miles) include shipments of STCC 27.

EXPLANATION OF TERMS

Commodity. Item that an establishment produces, sells, or distributes. This does not include items that are considered as excess or byproducts of the establishment's operation. Respondents reported the description and the five-digit STCC code for the **major** commodity contained in the shipment, defined as the commodity with the greatest weight in the total shipment.

Distance shipped. In table 3, shipment data are presented for various ''distance shipped'' intervals. Shipments were categorized into these ''distance shipped'' intervals based on the great circle distance between their origin and destination ZIP Code centroids. All other distance-related data in the tables (i.e., ton-miles and average miles per shipment) are based on the mileage calculations produced by Oak Ridge National Laboratories (see the ''Mileage Calculations'' section for more details).

Great circle distance. The shortest distance between two points on the earth's surface.

Mode of transportation. The type of transportation used for moving the shipment to its domestic destination. For exports, the domestic destination was the port of exit. On the questionnaire, we defined the possible modes as follows:

1. **Parcel, U.S. Postal Service, or courier.** Delivery services that carry letters, parcels, packages, and other small shipments that typically weigh less than 100 pounds. Includes bus parcel delivery service.

2. **Private truck.** Trucks operated by a temporary or permanent employee of an establishment or the buyer/ receiver of the shipment.

3. **For-hire truck.** Trucks that carry freight for a fee collected from the shipper, recipient of the shipment, or an arranger of the transportation.

4. **Railroad.** Any common carrier or private railroad.

5. **Inland water and/ or Great Lakes.** Barges, ships, or ferries operating primarily on rivers and canals; on harbors, the Great Lakes, the Saint Lawrence Seaway; the Intracoastal Waterway, the Inside Passage to Alaska, major bays and inlets; or on the ocean close to the shoreline.

6. **Deep sea water.** Barges, ships, or ferries operating primarily on the open ocean. Shipping on the Great Lakes and the Saint Lawrence Seaway is classified with inland water. [**Note:** As part of the mileage calculation operations, deep sea water shipments were reclassified to more accurately reflect a shipment's route rather than vessel type. Therefore, in the tables, ''deep sea water'' as a single mode describes shipments moving **only** on the open waters of the oceans or the Gulf of Mexico. Using this definition, deep sea as a single mode (i.e., without an inland water component) is nearly impossible. Most shipments moving primarily on the open ocean are tabulated under ''inland water and deep sea.'']

7. **Pipeline.** Movements of oil, petroleum, gas, slurry, etc., through pipelines that extend to other establishments or locations beyond the shipper's establishment. Aqueducts for the movement of water are not included.

8. **Air.** Movements using commercial or private aircraft, and all air service for shipments that typically weigh more than 100 pounds. Includes air freight and air express.

9. **Other mode.** Any mode not listed above.

10. **Mode unknown.** The shipment was not carried by a parcel delivery/ courier/ U.S. Postal Service, and the respondent could not determine what mode of transportation was used.

In the tables, the above modes appear, as well as the following additional mode descriptions:

1. **Single modes.** Shipments using only one of the above-listed modes, except other and unknown.

2. **Multiple modes.** Shipments for which two or more of the following modes of transportation were used:

   a. Private truck.

   b. For-hire truck.

   c. Air.

   d. Rail.

   e. Inland water.

   f. Great Lakes.

   g. Deep sea water.

   h. Pipeline.

   We did not allow for multiple modes in combination with ''parcel delivery, U.S. Postal Service, or courier'', ''unknown'', or ''other'', which, by their nature, may already include various kinds of multiple-mode activity. For example, if the respondent reported a shipment's mode of transportation as parcel and air, we treated the shipment as parcel only.

3. **Other modes.** Shipments for which mode was not reported, or was recorded as ''Other'' or ''Unknown.'' Also, shipments using any other mode or mode combinations not specifically listed in the table.

4. **Truck.** For-hire truck and/ or private truck.

5. **Water.** Inland water and/ or Great Lakes and/ or deep sea water.

6. **Great Lakes.** On the questionnaire, ''Inland water and/ or Great Lakes'' appeared as one mode. In the tables in this publication, ''Great Lakes'' appears as a separate mode. The transportation network and mileage calculation system that Oak Ridge National Laboratories developed for this survey allowed for separate mileage calculations for inland water and Great Lakes between the origin and destination ZIP Codes (see the ''Mileage Calculations'' section for more details). Therefore, a shipment reported as using inland water and/ or Great Lakes can appear in the tables as a single mode inland water shipment, or a single mode Great Lakes shipment, or a multiple mode inland water and Great Lakes shipment.

7. **Inland water.** On the questionnaire, ''Inland water and/ or Great Lakes'' appeared as one mode. In the tables in this publication, ''Inland water'' appears as a separate mode. See the ''Great Lakes'' section above for the explanation.

Shipment. A shipment (or delivery) is an individual movement of commodities from an establishment to a customer or to another location of the originating company (including a warehouse, distribution center, retail or wholesale outlet). A shipment uses one or more modes of transportation including parcel delivery, U.S. Postal Service, courier, private truck, for-hire truck, rail, water, pipeline, air, and other modes.

Standard Transportation Commodity Classification (STCC). A commodity coding system that the Association of American Railroads developed and maintains. The 1993 Commodity Flow Survey used this classification system at the five-digit level.

Ton-miles. The weight times the mileage for a shipment. The respondents reported shipment weight in pounds, as described below. Mileage was calculated as the distance between the shipment origin and destination ZIP Codes. For shipments by truck, rail, or inland water/ Great Lakes, the mileage excludes international segments. For example, mileages from Alaska to the continental United States exclude any mileages through Canada (see the ''Mileage Calculations'' section for more details). Aggregated pound-miles were converted to ton-miles. The tables in this publication show ton-miles in millions.

Tons shipped. The total weight of the entire shipment. Respondents reported the weight in pounds. Aggregated pounds were converted to short-tons (2,000 pounds). The tables in this publication show tons in thousands.

Total modal activity. The overall activity (e.g., ton-miles) of a specific mode of transportation, whether used in a single-mode shipment, or as part of a multiple-mode shipment. For example, the total modal activity for private truck is the total ton-miles carried by private truck in single-mode shipments, combined with the total ton-miles carried by private truck in all multiple-mode shipments that include private truck (private truck and for-hire truck, private truck and rail, private truck and air, etc.). ''Total modal activity'' appears in table 2 of this publication.

Value of shipments. The dollar value of the entire shipment. This was defined as the net selling value, f.o.b. plant, exclusive of freight charges and excise taxes. The tables in this publication show value in millions of dollars.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero or less than 1 unit of measure.
(D)	Denotes figures withheld to avoid disclosing data for individual companies.
(S)	Data do not meet publication standards due to high sampling variability or other reasons.
CFS	Commodity Flow Survey.
CTS	Commodity Transportation Survey.
CV	Coefficient of Variation.
lb	Pounds.
N.E.C.	Not Elsewhere Classified.
NTAR	National Transportation Analysis Region.
SIC	Standard Industrial Classification.
SSEL	Standard Statistical Establishment List.
STCC	Standard Transportation Commodity Classification.

Users' Guide for Locating Statistics in This Report by Table Number

Information shown in tables	Tables						
	1	2	3	4	5	6	7
Value	X		X	X	X	X	X
Tons	X		X	X	X	X	X
Ton-miles	X	X	X	X	X	X	X
Average miles per shipment	X	X		X	X	X	
Mode of transportation	X	X	X	X		X	
Distance shipped			X				
Shipment size				X			
Commodity					X	X	
State of destination							X

Contents
Missouri

[Page numbers listed here omit the prefix that appears as part of the number of each page]

	Page
Introduction to the Economic Census	III
1993 Commodity Flow Survey	V
Users' Guide for Locating Statistics in This Report by Table Number	X

TABLES

1.	Shipment Characteristics by Mode of Transportation for State of Origin: 1993	3
2.	Shipment Characteristics by Total Modal Activity for State of Origin: 1993	3
3.	Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993	4
4.	Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993	7
5.	Shipment Characteristics by Commodity for State of Origin: 1993	10
6.	Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993	11
7.	Shipment Characteristics by State of Destination for State of Origin: 1993	23

APPENDIXES

A.	Comparability With Previous Surveys	A–1
B.	Reliability of the Data	B–1
C.	Sample Design, Survey Methodology, and Estimation	C–1
D.	Standard Transportation Commodity Classification Code Information	D–1
E.	Sample Report Forms and Instructions	E–1

Publication Program ..... Inside back cover

TIPS UPF [APS_PPGB,MA_SMITH] 2/ 29/ 96 14:18:51 MCVX09 TLP:MO.TOC;2 2/ 29/ 96 14:18:29 DATA:NONE UPF:MO.UPF PAGE: 1
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Table 1. **Shipment Characteristics by Mode of Transportation for State of Origin: 1993**

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
All modes	**136 929**	**100.0**	**195 212**	**100.0**	**46 085**	**100.0**	**405**
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	13 858	10.1	640	.3	411	.9	646
Private truck	34 121	24.9	96 128	49.2	5 642	12.2	56
For-hire truck	65 084	47.5	58 948	30.2	14 452	31.4	503
Air	30	–	1	–	1	–	1 246
Rail	4 160	3.0	11 827	6.1	7 888	17.1	867
Inland water	1 354	1.0	20 531	10.5	14 662	31.8	494
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
MULTIPLE MODES							
Private truck and for-hire truck	80	.1	(S)	–	(S)	–	(S)
Truck and air	(S)	(S)	58	–	110	.2	1 467
Truck and rail	5 044	3.7	948	.5	1 251	2.7	1 165
Truck and water	50	–	(S)	–	(S)	(S)	(S)
Truck and pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	(D)	(D)	(D)	(D)	(D)	(D)	(D)
OTHER MODES							
Other and unknown modes	6 103	4.5	5 099	2.6	916	2.0	353

Note: "Deep sea water" as a single mode describes shipments moving only on the open waters of the oceans or the Gulf of Mexico. Most shipments moving primarily on the open ocean are tabulated under "Inland water and deep sea".

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Average miles and ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for further explanation. Calculation of average miles per shipment excludes shipments of STCC 27, Printed Matter. See "About the Data" section of this report for further explanation.
[2]CFS data for pipelines exclude most shipments of crude oil. See "About the Data" section for details of CFS coverage.

Table 2. **Shipment Characteristics by Total Modal Activity for State of Origin: 1993**

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation[1]	Ton-miles[2]		Average miles per shipment[2]
	Number (millions)	Percent	
Total	**46 085**	**100.0**	**405**
Parcel, U.S. Postal Service, or courier, total	411	.9	646
Truck, total	20 353	44.2	180
Air, total	104	.2	1 378
Rail, total	9 056	19.6	1 012
Inland water, total	15 226	33.0	323
Great Lakes, total	–	–	–
Deep sea water, total	(S)	–	(S)
Pipeline, total	(S)	–	(S)
Other and unknown modes, total	916	2.0	353

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Data represent activity for a given mode across single and multiple mode shipments. For example, total truck activity includes private truck and/ or for-hire truck single mode combined with private and for-hire truck segments of all multiple mode trips including truck.
[2]Average miles and ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for further explanation. Calculation of average miles per shipment excludes shipments of STCC 27, Printed Matter. See "About the Data" section of this report for further explanation.

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Table 3. Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles[1]	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
ALL MODES						
Total	**136 929**	**100.0**	**195 212**	**100.0**	**46 085**	**100.0**
Less than 50 miles	31 010	22.6	114 260	58.5	2 352	5.1
50 to 99 miles	8 339	6.1	14 672	7.5	1 383	3.0
100 to 249 miles	19 845	14.5	20 561	10.5	4 372	9.5
250 to 499 miles	26 091	19.1	21 865	11.2	12 254	26.6
500 to 749 miles	18 995	13.9	15 876	8.1	14 546	31.6
750 to 999 miles	15 284	11.2	4 027	2.1	4 292	9.3
1,000 to 1,499 miles	10 883	7.9	2 691	1.4	4 221	9.2
1,500 to 1,999 miles	6 033	4.4	1 201	.6	2 486	5.4
2,000 miles or more	449	.3	58	–	178	.4
SINGLE MODES						
Parcel, U.S. Postal Service, or courier	**13 858**	**100.0**	**640**	**100.0**	**411**	**100.0**
Less than 50 miles	1 784	12.9	89	14.0	2	.5
50 to 99 miles	524	3.8	28	4.4	3	.7
100 to 249 miles	2 010	14.5	104	16.3	22	5.2
250 to 499 miles	3 316	23.9	148	23.1	64	15.7
500 to 749 miles	2 081	15.0	90	14.1	65	15.9
750 to 999 miles	1 369	9.9	62	9.6	63	15.3
1,000 to 1,499 miles	1 982	14.3	90	14.1	134	32.6
1,500 to 1,999 miles	748	5.4	27	4.2	53	13.0
2,000 miles or more	44	.3	2	.3	5	1.1
Private truck	**34 121**	**100.0**	**96 128**	**100.0**	**5 642**	**100.0**
Less than 50 miles	18 078	53.0	77 794	80.9	1 562	27.7
50 to 99 miles	4 773	14.0	7 977	8.3	725	12.9
100 to 249 miles	6 442	18.9	7 286	7.6	1 393	24.7
250 to 499 miles	2 667	7.8	1 799	1.9	774	13.7
500 to 749 miles	1 216	3.6	795	.8	569	10.1
750 to 999 miles	489	1.4	252	.3	255	4.5
1,000 to 1,499 miles	302	.9	172	.2	254	4.5
1,500 to 1,999 miles	153	.4	54	.1	109	1.9
2,000 miles or more	–	–	–	–	–	–
For-hire truck	**65 084**	**100.0**	**58 948**	**100.0**	**14 452**	**100.0**
Less than 50 miles	9 158	14.1	29 067	49.3	642	4.4
50 to 99 miles	2 563	3.9	5 017	8.5	460	3.2
100 to 249 miles	9 481	14.6	8 844	15.0	1 818	12.6
250 to 499 miles	15 838	24.3	8 138	13.8	3 543	24.5
500 to 749 miles	12 316	18.9	3 885	6.6	2 820	19.5
750 to 999 miles	7 390	11.4	2 095	3.6	2 125	14.7
1,000 to 1,499 miles	5 496	8.4	1 327	2.3	1 919	13.3
1,500 to 1,999 miles	2 715	4.2	559	.9	1 103	7.6
2,000 miles or more	(S)	(S)	(S)	–	(S)	(S)
Air	**30**	**100.0**	**1**	**100.0**	**1**	**100.0**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	(S)	(S)	–	(S)	–	(S)
250 to 499 miles	4	14.1	–	(S)	–	(S)
500 to 749 miles	3	9.5	–	8.1	–	5.4
750 to 999 miles	(S)	(S)	–	(S)	–	(S)
1,000 to 1,499 miles	(S)	(S)	–	(S)	–	(S)
1,500 to 1,999 miles	2	8.0	–	(S)	–	(S)
2,000 miles or more	(S)	(S)	–	(S)	–	(S)
Rail	**4 160**	**100.0**	**11 827**	**100.0**	**7 888**	**100.0**
Less than 50 miles	179	4.3	1 247	10.5	54	.7
50 to 99 miles	121	2.9	836	7.1	104	1.3
100 to 249 miles	288	6.9	1 720	14.5	457	5.8
250 to 499 miles	1 142	27.5	3 044	25.7	1 510	19.1
500 to 749 miles	796	19.1	2 457	20.8	2 015	25.6
750 to 999 miles	722	17.3	1 372	11.6	1 563	19.8
1,000 to 1,499 miles	609	14.6	779	6.6	1 367	17.3
1,500 to 1,999 miles	304	7.3	373	3.2	818	10.4
2,000 miles or more	–	–	–	–	–	–
Inland water	**1 354**	**100.0**	**20 531**	**100.0**	**14 662**	**100.0**
Less than 50 miles	(S)	(S)	(S)	(S)	(S)	(S)
50 to 99 miles	(S)	(S)	(S)	(S)	(S)	(S)
100 to 249 miles	(S)	(S)	1 506	7.3	442	3.0
250 to 499 miles	(S)	(S)	(S)	(S)	(S)	(S)
500 to 749 miles	(S)	(S)	8 396	40.9	8 853	60.4
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Deep sea water	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–

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Table 3. **Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles[1]	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
SINGLE MODES—Con.						
Deep sea water—Con.						
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Pipeline[2]	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
MULTIPLE MODES						
Private truck and for-hire truck	**80**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 miles	14	17.1	(S)	(S)	–	(S)
50 to 99 miles	(S)	(S)	(S)	(S)	–	(S)
100 to 249 miles	16	20.2	5	5.2	1	6.3
250 to 499 miles	19	23.4	9	10.0	4	24.4
500 to 749 miles	(S)	(S)	(S)	(S)	–	(S)
750 to 999 miles	(S)	(S)	(S)	(S)	–	(S)
1,000 to 1,499 miles	(S)	(S)	–	(S)	–	(S)
1,500 to 1,999 miles	–	(S)	–	–	–	(S)
2,000 miles or more	–	–	–	–	–	–
Truck and air	**(S)**	**(S)**	**58**	**100.0**	**110**	**100.0**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	(S)	–	–	(S)	–	–
100 to 249 miles	(S)	(S)	1	2.4	1	.6
250 to 499 miles	364	5.2	5	9.0	4	3.2
500 to 749 miles	(S)	(S)	5	9.2	5	4.6
750 to 999 miles	(S)	(S)	12	20.1	14	12.4
1,000 to 1,499 miles	(S)	(S)	4	7.0	6	5.6
1,500 to 1,999 miles	(S)	(S)	(S)	(S)	(S)	(S)
2,000 miles or more	(S)	(S)	(S)	(S)	(S)	(S)
Truck and rail	**5 044**	**100.0**	**948**	**100.0**	**1 251**	**100.0**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	(S)	–	(S)	(S)	–	–
250 to 499 miles	(S)	(S)	(S)	(S)	(S)	(S)
500 to 749 miles	(S)	(S)	184	19.4	163	13.0
750 to 999 miles	1 017	20.2	177	18.7	215	17.1
1,000 to 1,499 miles	(S)	(S)	302	31.8	517	41.3
1,500 to 1,999 miles	634	12.6	112	11.8	253	20.2
2,000 miles or more	–	–	–	–	–	–
Truck and water	**50**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)
750 to 999 miles	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 1,499 miles	–	(S)	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	(S)	–	–	–	–
Truck and pipeline[2]	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Rail and water	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Inland water and Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–

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Table 3. **Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles[1]	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
MULTIPLE MODES—Con.						
Inland water and Great Lakes—Con.						
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Inland water and deep sea	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	(D)	(D)	(D)	(D)	(D)	(D)
2,000 miles or more	–	–	–	–	–	–
OTHER MODES						
Other and unknown modes	**6 103**	**100.0**	**5 099**	**100.0**	**916**	**100.0**
Less than 50 miles	1 776	29.1	2 727	53.5	39	4.3
50 to 99 miles	333	5.4	359	7.0	34	3.7
100 to 249 miles	(S)	(S)	1 094	21.5	239	26.0
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)
750 to 999 miles	279	4.6	55	1.1	54	5.9
1,000 to 1,499 miles	98	1.6	17	.3	23	2.5
1,500 to 1,999 miles	(D)	(D)	(D)	(D)	(D)	(D)
2,000 miles or more	209	3.4	26	.5	101	11.1

Note: "Deep sea water" as a single mode describes shipments moving only on the open waters of the oceans or the Gulf of Mexico. Most shipments moving primarily on the open ocean are tabulated under "Inland water and deep sea".

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for further explanation.
[2]CFS data for pipelines exclude most shipments of crude oil. See "About the Data" section for details of CFS coverage.

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Table 4. Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation and shipment size	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
ALL MODES							
Total	**136 929**	**100.0**	**195 212**	**100.0**	**46 085**	**100.0**	**405**
Less than 50 lb	14 258	10.4	526	.3	244	.5	497
50 to 99 lb	4 890	3.6	367	.2	144	.3	326
100 to 499 lb	20 378	14.9	2 177	1.1	671	1.5	272
500 to 749 lb	5 323	3.9	984	.5	247	.5	198
750 to 999 lb	3 341	2.4	764	.4	149	.3	201
1,000 to 9,999 lb	36 969	27.0	14 991	7.7	3 601	7.8	252
10,000 to 49,999 lb	43 576	31.8	96 657	49.5	15 034	32.6	144
50,000 to 99,999 lb	3 466	2.5	35 251	18.1	2 346	5.1	66
100,000 lb or more	4 728	3.5	43 495	22.3	23 649	51.3	420
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	**13 858**	**100.0**	**640**	**100.0**	**411**	**100.0**	**646**
Less than 50 lb	8 226	59.4	292	45.7	191	46.4	655
50 to 99 lb	2 389	17.2	114	17.8	73	17.8	509
100 to 499 lb	2 889	20.8	191	29.9	130	31.7	642
500 to 749 lb	224	1.6	27	4.2	11	2.7	390
750 to 999 lb	131	.9	16	2.5	6	1.4	481
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Private truck	**34 121**	**100.0**	**96 128**	**100.0**	**5 642**	**100.0**	**56**
Less than 50 lb	1 967	5.8	156	.2	7	.1	41
50 to 99 lb	1 187	3.5	170	.2	11	.2	65
100 to 499 lb	4 069	11.9	1 212	1.3	76	1.3	64
500 to 749 lb	1 316	3.9	637	.7	37	.7	64
750 to 999 lb	917	2.7	493	.5	32	.6	67
1,000 to 9,999 lb	10 108	29.6	10 238	10.7	744	13.2	76
10,000 to 49,999 lb	12 793	37.5	56 782	59.1	3 461	61.3	58
50,000 to 99,999 lb	1 327	3.9	17 954	18.7	825	14.6	48
100,000 lb or more	437	1.3	8 486	8.8	449	7.9	43
For-hire truck	**65 084**	**100.0**	**58 948**	**100.0**	**14 452**	**100.0**	**503**
Less than 50 lb	1 261	1.9	55	.1	(S)	–	(S)
50 to 99 lb	938	1.4	69	.1	(S)	–	(S)
100 to 499 lb	9 737	15.0	693	1.2	372	2.6	437
500 to 749 lb	2 986	4.6	278	.5	138	1.0	492
750 to 999 lb	2 113	3.2	237	.4	103	.7	441
1,000 to 9,999 lb	18 314	28.1	3 862	6.6	1 953	13.5	514
10,000 to 49,999 lb	27 725	42.6	35 726	60.6	10 066	69.7	285
50,000 to 99,999 lb	1 513	2.3	15 989	27.1	1 188	8.2	76
100,000 lb or more	497	.8	2 038	3.5	544	3.8	287
Air	**30**	**100.0**	**1**	**100.0**	**1**	**100.0**	**1 246**
Less than 50 lb	14	45.2	–	20.0	–	(S)	(S)
50 to 99 lb	6	18.9	–	22.1	–	(S)	(S)
100 to 499 lb	10	34.0	–	48.8	–	43.1	1 275
500 to 749 lb	(S)	(S)	–	9.1	–	(S)	(S)
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Rail	**4 160**	**100.0**	**11 827**	**100.0**	**7 888**	**100.0**	**867**
Less than 50 lb	–	–	–	–	–	–	(S)
50 to 99 lb	–	–	–	–	–	–	(S)
100 to 499 lb	(S)	(S)	–	–	–	–	(S)
500 to 749 lb	–	–	–	–	–	–	(S)
750 to 999 lb	–	–	–	–	–	–	(S)
1,000 to 9,999 lb	1 198	28.8	103	.9	104	1.3	999
10,000 to 49,999 lb	490	11.8	434	3.7	544	6.9	1 278
50,000 to 99,999 lb	85	2.0	150	1.3	124	1.6	808
100,000 lb or more	2 385	57.3	11 139	94.2	7 115	90.2	670
Inland water	**1 354**	**100.0**	**20 531**	**100.0**	**14 662**	**100.0**	**494**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	(S)	(S)	–	–	(S)
100,000 lb or more	1 353	100.0	20 496	99.8	14 662	100.0	516
Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Deep sea water	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:04:22 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_4_29 PAGE: 1
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Table 4. **Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation and shipment size	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
SINGLE MODES—Con.							
Deep sea water—Con.							
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Pipeline[2]	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
MULTIPLE MODES							
Private truck and for-hire truck	**80**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 lb	9	11.1	–	.1	–	.2	233
50 to 99 lb	(S)	(S)	–	.2	–	.2	262
100 to 499 lb	(S)	(S)	2	1.7	–	2.7	302
500 to 749 lb	(S)	(S)	(S)	(S)	–	(S)	(S)
750 to 999 lb	(S)	(S)	–	.5	–	(S)	(S)
1,000 to 9,999 lb	16	19.7	10	10.6	3	19.3	321
10,000 to 49,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
50,000 to 99,999 lb	–	.4	(S)	(S)	–	(S)	(S)
100,000 lb or more	–	–	–	–	–	–	–
Truck and air	**(S)**	**(S)**	**58**	**100.0**	**110**	**100.0**	**1 467**
Less than 50 lb	(S)	(S)	7	11.5	8	7.3	1 175
50 to 99 lb	264	3.8	3	5.7	4	3.7	1 292
100 to 499 lb	(S)	(S)	36	62.6	(S)	(S)	(S)
500 to 749 lb	27	.4	1	2.3	2	1.4	1 160
750 to 999 lb	(S)	(S)	1	1.0	1	.6	1 317
1,000 to 9,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
10,000 to 49,999 lb	(S)	(S)	–	.3	–	–	(S)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Truck and rail	**5 044**	**100.0**	**948**	**100.0**	**1 251**	**100.0**	**1 165**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	(S)
100 to 499 lb	(S)	(S)	–	–	–	–	(S)
500 to 749 lb	(S)	(S)	–	–	–	–	(S)
750 to 999 lb	(S)	(S)	(S)	(S)	(S)	–	(S)
1,000 to 9,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
10,000 to 49,999 lb	(S)	(S)	243	25.7	380	30.4	1 587
50,000 to 99,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
100,000 lb or more	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	**50**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 lb	(S)	(S)	–	–	–	–	(S)
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	.3	–	–	–	–	(S)
1,000 to 9,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10,000 to 49,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and pipeline[2]	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50,000 to 99,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100,000 lb or more	–	–	–	–	–	–	–
Rail and water	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Inland water and Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:04:22 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_4_29 PAGE: 2
TSF:TIPS92-16040321.DAT;1 5/ 7/ 96 16:04:05 UTF:TIPS93-16040321.DAT;1 5/ 7/ 96 16:04:05 META:TIPS96-16040321.DAT;1 5/ 7/ 96 16:04:19

Table 4. **Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

Mode of transportation and shipment size	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
MULTIPLE MODES—Con.							
Inland water and Great Lakes—Con.							
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Inland water and deep sea	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10,000 to 49,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
OTHER MODES							
Other and unknown modes	**6 103**	**100.0**	**5 099**	**100.0**	**916**	**100.0**	**353**
Less than 50 lb	(S)	(S)	15	.3	(S)	–	(S)
50 to 99 lb	(S)	(S)	10	.2	(S)	–	(S)
100 to 499 lb	257	4.2	42	.8	(S)	–	(S)
500 to 749 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
750 to 999 lb	(S)	(S)	(S)	(S)	(S)	–	(S)
1,000 to 9,999 lb	1 481	24.3	218	4.3	143	15.6	666
10,000 to 49,999 lb	2 313	37.9	3 346	65.6	548	59.9	140
50,000 to 99,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: "Deep sea water" as a single mode describes shipments moving only on the open waters of the oceans or the Gulf of Mexico. Most shipments moving primarily on the open ocean are tabulated under "Inland water and deep sea".

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Average miles and ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for further explanation. Calculation of average miles per shipment excludes shipments of STCC 27, Printed Matter. See "About the Data" section of this report for further explanation.
[2]CFS data for pipelines exclude most shipments of crude oil. See "About the Data" section for details of CFS coverage.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:04:22 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_4_29 PAGE: 3
TSF:TIPS92-16040321.DAT;1 5/ 7/ 96 16:04:05 UTF:TIPS93-16040321.DAT;1 5/ 7/ 96 16:04:05 META:TIPS96-16040321.DAT;1 5/ 7/ 96 16:04:19

Table 5. **Shipment Characteristics by Commodity for State of Origin: 1993**

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code	Commodity description	Value (million dollars)	Tons (thousands)	Ton-miles[1] (millions)	Average miles per shipment[1]
	ALL COMMODITIES				
	Total	**136 929**	**195 212**	**46 085**	**405**
01	Farm products	4 598	23 450	13 400	90
08	Forest products	(D)	(D)	(D)	(D)
09	Fresh fish or other marine products	(S)	(S)	–	(S)
10	Metallic ores	159	1 057	320	236
11	Coal	(D)	(D)	(D)	(D)
13	Crude petroleum, natural gas, or gasoline	(S)	(S)	(S)	(S)
14	Nonmetallic minerals	498	60 682	1 774	28
19	Ordnance or accessories	327	26	26	1 086
20	Food or kindred products	22 837	27 374	9 241	142
21	Tobacco products, excluding insecticides	1 191	65	3	(S)
22	Textile mill products	370	93	28	425
23	Apparel or other finished textile products	2 351	131	83	862
24	Lumber or wood products, excluding furniture	2 020	4 413	918	167
25	Furniture or fixtures	1 541	632	489	1 302
26	Pulp, paper, or allied products	5 282	3 711	927	139
27	Printed matter	(S)	(S)	(S)	–
28	Chemicals or allied products	13 660	6 979	2 760	455
29	Petroleum or coal products	3 693	12 226	789	47
30	Rubber or miscellaneous plastics products	3 285	1 158	534	379
31	Leather or leather products	2 269	130	87	758
32	Clay, concrete, glass, or stone products	2 008	36 574	6 922	152
33	Primary metal products	4 129	4 826	2 226	223
34	Fabricated metal products	6 245	1 757	701	388
35	Machinery, excluding electrical	7 511	805	372	260
36	Electrical machinery, equipment, or supplies	8 412	1 225	799	699
37	Transportation equipment	23 930	2 509	1 850	333
38	Instruments, photographic goods, optical goods, watches, or clocks	2 639	146	56	427
39	Miscellaneous products of manufacturing	4 149	382	219	817
40	Waste or scrap materials	268	2 079	588	214
41	Miscellaneous freight shipments	997	(S)	(S)	(S)
42	Containers, carriers or devices, shipping, returned empty	1	1	–	(S)
48	Waste hazardous materials or waste hazardous substances	(D)	(D)	(D)	(D)
—	Commodity unknown	(S)	61	32	580

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Average miles and ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for further explanation. Calculation of average miles per shipment excludes shipments of STCC 27, Printed Matter. See "About the Data" section of this report for further explanation.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:08:21 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_5_29 PAGE: 1
TSF:TIPS92-16080978.DAT;1 5/ 7/ 96 16:08:12 UTF:TIPS93-16080978.DAT;1 5/ 7/ 96 16:08:12 META:TIPS96-16080978.DAT;1 5/ 7/ 96 16:08:20

Table 6. Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
ALL COMMODITIES							
Total	**136 929**	**100.0**	**195 212**	**100.0**	**46 085**	**100.0**	**405**
Single Modes							
Parcel, U.S. Postal Service, or courier	13 858	10.1	640	.3	411	.9	646
Private truck	34 121	24.9	96 128	49.2	5 642	12.2	56
For-hire truck	65 084	47.5	58 948	30.2	14 452	31.4	503
Air	30	–	1	–	1	–	1 246
Rail	4 160	3.0	11 827	6.1	7 888	17.1	867
Inland water	1 354	1.0	20 531	10.5	14 662	31.8	494
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	80	.1	(S)	–	(S)	–	(S)
Truck and air	(S)	(S)	58	–	110	.2	1 467
Truck and rail	5 044	3.7	948	.5	1 251	2.7	1 165
Truck and water	50	–	(S)	(S)	(S)	(S)	(S)
Truck and pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other Modes							
Other and unknown modes	6 103	4.5	5 099	2.6	916	2.0	353
STCC 01, FARM PRODUCTS							
Total	**4 598**	**100.0**	**23 450**	**100.0**	**13 400**	**100.0**	**90**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	–	–	–	(S)
Private truck	1 559	33.9	4 805	20.5	702	5.2	56
For-hire truck	1 228	26.7	3 948	16.8	506	3.8	206
Air	–	–	–	–	–	–	–
Rail	475	10.3	3 927	16.7	(S)	(S)	(S)
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	49	1.1	(S)	(S)	(S)	–	(S)
STCC 08, FOREST PRODUCTS							
Total	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 1
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 09, FRESH FISH OR OTHER MARINE PRODUCTS							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	(S)	–	(S)	–	–	(S)
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	–	(S)	–	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 10, METALLIC ORES							
Total	**159**	**100.0**	**1 057**	**100.0**	**320**	**100.0**	**236**
Single Modes							
Parcel, U.S. Postal Service, or courier	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	92	57.8	495	46.8	63	19.7	(S)
Air	–	–	–	–	–	–	–
Rail	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 11, COAL							
Total	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	–	–	–	–	–	–	–
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 2
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 13, CRUDE PETROLEUM, NATURAL GAS, OR GASOLINE							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 14, NONMETALLIC MINERALS							
Total	**498**	**100.0**	**60 682**	**100.0**	**1 774**	**100.0**	**28**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	(S)
Private truck	356	71.4	38 894	64.1	990	55.8	23
For-hire truck	108	21.7	17 091	28.2	468	26.4	37
Air	–	–	–	–	–	–	–
Rail	13	2.7	724	1.2	247	13.9	350
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	791	1.3	24	1.4	(S)
STCC 19, ORDNANCE OR ACCESSORIES							
Total	**327**	**100.0**	**26**	**100.0**	**26**	**100.0**	**1 086**
Single Modes							
Parcel, U.S. Postal Service, or courier	22	6.7	1	2.1	–	1.9	1 118
Private truck	–	(S)	–	(S)	–	–	(S)
For-hire truck	142	43.4	12	46.1	12	44.1	960
Air	–	–	–	–	–	–	–
Rail	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	–	(S)	–	–	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 3
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 20, FOOD OR KINDRED PRODUCTS							
Total	**22 837**	**100.0**	**27 374**	**100.0**	**9 241**	**100.0**	**142**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	(S)	(S)	–	(S)
Private truck	10 326	45.2	10 906	39.8	1 600	17.3	55
For-hire truck	9 234	40.4	9 679	35.4	3 655	39.6	384
Air	–	–	–	–	–	–	–
Rail	1 313	5.7	3 950	14.4	3 343	36.2	901
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	–	(S)	–	(S)
Truck and air	(S)	–	(S)	–	(S)	–	(S)
Truck and rail	39	.2	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	1 397	6.1	2 733	10.0	511	5.5	112
STCC 21, TOBACCO PRODUCTS, EXCLUDING INSECTICIDES							
Total	**1 191**	**100.0**	**65**	**100.0**	**3**	**100.0**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	–	(S)	–	(S)	(S)
Private truck	994	83.5	59	89.9	(S)	(S)	(S)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 22, TEXTILE MILL PRODUCTS							
Total	**370**	**100.0**	**93**	**100.0**	**28**	**100.0**	**425**
Single Modes							
Parcel, U.S. Postal Service, or courier	81	21.9	6	6.1	3	11.4	618
Private truck	72	19.4	20	21.6	3	9.2	98
For-hire truck	199	53.7	64	68.0	19	67.2	236
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	–	–	–	–	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 4
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 23, APPAREL OR OTHER FINISHED TEXTILE PRODUCTS							
Total	**2 351**	**100.0**	**131**	**100.0**	**83**	**100.0**	**862**
Single Modes							
Parcel, U.S. Postal Service, or courier	621	26.4	19	14.9	14	17.1	782
Private truck	332	14.1	19	14.8	6	7.3	123
For-hire truck	1 358	57.8	89	67.9	60	72.7	975
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	(S)
Truck and air	7	.3	–	.2	–	.3	1 301
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	(S)
STCC 24, LUMBER OR WOOD PRODUCTS, EXCLUDING FURNITURE							
Total	**2 020**	**100.0**	**4 413**	**100.0**	**918**	**100.0**	**167**
Single Modes							
Parcel, U.S. Postal Service, or courier	21	1.0	3	.1	2	.2	666
Private truck	1 336	66.1	2 808	63.6	254	27.6	63
For-hire truck	614	30.4	1 361	30.9	545	59.4	450
Air	–	–	–	–	–	–	–
Rail	19	1.0	78	1.8	88	9.6	1 174
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and air	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 25, FURNITURE OR FIXTURES							
Total	**1 541**	**100.0**	**632**	**100.0**	**489**	**100.0**	**1 302**
Single Modes							
Parcel, U.S. Postal Service, or courier	42	2.7	5	.8	3	.7	701
Private truck	485	31.5	205	32.4	75	15.3	155
For-hire truck	916	59.4	379	59.9	318	65.0	1 181
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	11	.7	(S)	(S)	(S)	–	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 5
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 26, PULP, PAPER, OR ALLIED PRODUCTS							
Total	**5 282**	**100.0**	**3 711**	**100.0**	**927**	**100.0**	**139**
Single Modes							
Parcel, U.S. Postal Service, or courier	179	3.4	31	.8	8	.9	346
Private truck	1 666	31.6	1 574	42.4	122	13.1	37
For-hire truck	3 266	61.8	1 930	52.0	714	77.0	159
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	(S)	–	–	(S)
Truck and air	1	–	–	–	–	–	1 390
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	(S)	(S)	–	(S)	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	80	1.5	(S)	(S)	(S)	(S)	(S)
STCC 27, PRINTED MATTER							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**–**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	(S)	(S)	(S)	–
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	–
For-hire truck	(S)	(S)	(S)	(S)	(S)	(S)	–
Air	(S)	–	–	–	–	–	–
Rail	(S)	–	(S)	(S)	(S)	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	(S)	(S)	(S)	(S)	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	–
STCC 28, CHEMICALS OR ALLIED PRODUCTS							
Total	**13 660**	**100.0**	**6 979**	**100.0**	**2 760**	**100.0**	**455**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 701	12.5	45	.6	22	.8	636
Private truck	2 437	17.8	2 390	34.2	299	10.8	46
For-hire truck	8 259	60.5	3 561	51.0	1 735	62.9	407
Air	–	–	–	–	–	–	(S)
Rail	149	1.1	570	8.2	336	12.2	726
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	34	.2	(S)	(S)	(S)	–	(S)
Truck and air	204	1.5	3	–	4	.1	1 234
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	(S)	–	–	–	(S)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	61	.9	13	.5	72

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 6
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 29, PETROLEUM OR COAL PRODUCTS							
Total	**3 693**	**100.0**	**12 226**	**100.0**	**789**	**100.0**	**47**
Single Modes							
Parcel, U.S. Postal Service, or courier	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Private truck	3 121	84.5	9 691	79.3	395	50.0	25
For-hire truck	511	13.8	2 266	18.5	378	47.9	279
Air	–	–	–	–	–	–	–
Rail	2	.1	4	–	7	.9	2 186
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	–	–	–	(S)
Truck and air	–	–	–	–	–	–	(S)
Truck and rail	(S)	–	(S)	–	–	–	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	33	.9	169	1.4	4	.5	(S)
STCC 30, RUBBER OR MISCELLANEOUS PLASTICS PRODUCTS							
Total	**3 285**	**100.0**	**1 158**	**100.0**	**534**	**100.0**	**379**
Single Modes							
Parcel, U.S. Postal Service, or courier	322	9.8	24	2.1	13	2.3	536
Private truck	811	24.7	303	26.2	50	9.3	71
For-hire truck	1 967	59.9	752	65.0	392	73.4	645
Air	–	–	–	–	–	–	(S)
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and air	17	.5	2	.1	1	.3	1 037
Truck and rail	14	.4	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	(S)
Other Modes							
Other and unknown modes	88	2.7	25	2.1	6	1.2	(S)
STCC 31, LEATHER OR LEATHER PRODUCTS							
Total	**2 269**	**100.0**	**130**	**100.0**	**87**	**100.0**	**758**
Single Modes							
Parcel, U.S. Postal Service, or courier	366	16.1	11	8.4	11	12.9	895
Private truck	513	22.6	43	33.1	11	12.4	665
For-hire truck	1 381	60.9	76	58.2	65	74.1	455
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	–	–	–	.1	2 646
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	6	.3	–	(S)	–	.4	902

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 7
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 32, CLAY, CONCRETE, GLASS, OR STONE PRODUCTS							
Total	**2 008**	**100.0**	**36 574**	**100.0**	**6 922**	**100.0**	**152**
Single Modes							
Parcel, U.S. Postal Service, or courier	115	5.7	16	–	9	.1	529
Private truck	899	44.8	19 702	53.9	483	7.0	45
For-hire truck	845	42.1	8 536	23.3	967	14.0	226
Air	–	–	–	–	–	–	–
Rail	61	3.1	719	2.0	601	8.7	824
Inland water	(S)	(S)	6 352	17.4	4 257	61.5	669
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	(S)	–	–	–	(S)
Truck and air	(S)	(S)	–	–	–	–	(S)
Truck and rail	10	.5	6	–	9	.1	1 530
Truck and water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	29	1.4	(S)	(S)	13	.2	(S)
STCC 33, PRIMARY METAL PRODUCTS							
Total	**4 129**	**100.0**	**4 826**	**100.0**	**2 226**	**100.0**	**223**
Single Modes							
Parcel, U.S. Postal Service, or courier	127	3.1	9	.2	4	.2	368
Private truck	1 083	26.2	1 844	38.2	218	9.8	61
For-hire truck	2 467	59.8	2 159	44.7	1 118	50.2	374
Air	–	–	–	–	–	–	(S)
Rail	292	7.1	558	11.6	629	28.3	1 222
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	–	(S)	–	(S)
Truck and air	3	.1	–	–	–	–	961
Truck and rail	68	1.6	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	–	(S)	–	–	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	86	2.1	79	1.6	23	1.0	121
STCC 34, FABRICATED METAL PRODUCTS							
Total	**6 245**	**100.0**	**1 757**	**100.0**	**701**	**100.0**	**388**
Single Modes							
Parcel, U.S. Postal Service, or courier	817	13.1	37	2.1	23	3.2	458
Private truck	1 554	24.9	563	32.0	84	12.0	44
For-hire truck	3 617	57.9	1 102	62.7	551	78.7	626
Air	–	–	–	–	–	–	(S)
Rail	54	.9	15	.9	17	2.4	1 041
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	95	1.5	28	1.6	8	1.1	92

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 8
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

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STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 35, MACHINERY, EXCLUDING ELECTRICAL							
Total	**7 511**	**100.0**	**805**	**100.0**	**372**	**100.0**	**260**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 683	22.4	49	6.1	18	4.8	286
Private truck	1 730	23.0	266	33.0	45	12.0	101
For-hire truck	3 075	40.9	395	49.1	264	71.2	371
Air	(S)	(S)	–	–	–	–	(S)
Rail	(S)	–	–	–	–	–	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	4	.1	1	.1	–	.1	605
Truck and air	171	2.3	4	.5	5	1.3	1 045
Truck and rail	–	–	–	–	–	–	–
Truck and water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	31	8.3	239
STCC 36, ELECTRICAL MACHINERY, EQUIPMENT, OR SUPPLIES							
Total	**8 412**	**100.0**	**1 225**	**100.0**	**799**	**100.0**	**699**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 256	14.9	37	3.0	23	2.9	794
Private truck	1 220	14.5	268	21.9	71	8.9	85
For-hire truck	5 387	64.0	862	70.3	627	78.4	538
Air	9	.1	–	–	–	–	910
Rail	186	2.2	51	4.2	72	9.0	1 375
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	288	3.4	2	.1	2	.2	1 068
Truck and rail	–	–	–	–	–	–	–
Truck and water	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	52	.6	5	.4	3	.3	349
STCC 37, TRANSPORTATION EQUIPMENT							
Total	**23 930**	**100.0**	**2 509**	**100.0**	**1 850**	**100.0**	**333**
Single Modes							
Parcel, U.S. Postal Service, or courier	588	2.5	23	.9	12	.6	489
Private truck	1 613	6.7	452	18.0	150	8.1	73
For-hire truck	10 670	44.6	1 291	51.4	817	44.2	375
Air	(S)	–	–	–	–	–	(S)
Rail	1 206	5.0	129	5.1	133	7.2	992
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	–	–	–	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	–	–	–	–	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	60	2.4	99	5.3	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 9
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

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STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 38, INSTRUMENTS, PHOTOGRAPHIC GOODS, OPTICAL GOODS, WATCHES, OR CLOCKS							
Total	**2 639**	**100.0**	**146**	**100.0**	**56**	**100.0**	**427**
Single Modes							
Parcel, U.S. Postal Service, or courier	977	37.0	25	17.1	11	20.7	478
Private truck	566	21.5	(S)	(S)	(S)	(S)	(S)
For-hire truck	756	28.6	55	37.7	31	55.3	380
Air	(S)	(S)	–	(S)	–	–	(S)
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	185	7.0	2	1.3	2	4.1	1 140
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	(S)
STCC 39, MISCELLANEOUS PRODUCTS OF MANUFACTURING							
Total	**4 149**	**100.0**	**382**	**100.0**	**219**	**100.0**	**817**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 231	29.7	60	15.8	52	23.6	873
Private truck	270	6.5	94	24.7	23	10.6	75
For-hire truck	901	21.7	172	45.1	119	54.6	491
Air	–	–	–	–	–	–	(S)
Rail	(S)	–	(S)	(S)	(S)	–	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	(S)
Truck and air	(S)	(S)	1	.2	1	.4	984
Truck and rail	(S)	(S)	(S)	(S)	–	–	(S)
Truck and water	–	–	–	–	–	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	128	3.1	(S)	(S)	(S)	(S)	(S)
STCC 40, WASTE OR SCRAP MATERIALS							
Total	**268**	**100.0**	**2 079**	**100.0**	**588**	**100.0**	**214**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	52	19.2	(S)	(S)	30	5.0	(S)
For-hire truck	150	55.9	(S)	(S)	369	62.8	329
Air	–	–	–	–	–	–	–
Rail	55	20.6	575	27.7	147	25.1	283
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	–	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 10
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
STCC 41, MISCELLANEOUS FREIGHT SHIPMENTS							
Total	**997**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	22	2.2	1	.6	–	.4	408
Private truck	11	1.1	(S)	(S)	(S)	(S)	(S)
For-hire truck	963	96.6	(S)	(S)	(S)	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	–	–	(S)
STCC 42, CONTAINERS, CARRIERS OR DEVICES, SHIPPING, RETURNED EMPTY							
Total	**1**	**100.0**	**1**	**100.0**	**–**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	1	80.7	1	74.9	–	(S)	(S)
For-hire truck	–	(S)	–	(S)	–	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 48, WASTE HAZARDOUS MATERIALS OR WASTE HAZARDOUS SUBSTANCES							
Total	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Single Modes							
Parcel, U.S. Postal Service, or courier	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 11
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 6. **Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

STCC code, description, and mode of transportation	Value		Tons		Ton-miles[1]		Average miles per shipment[1]
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
COMMODITY UNKNOWN							
Total	**(S)**	**(S)**	**61**	**100.0**	**32**	**100.0**	**580**
Single Modes							
Parcel, U.S. Postal Service, or courier	53	10.3	2	3.1	(S)	(S)	(S)
Private truck	54	10.5	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	28	46.6	20	63.2	820
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	–	(S)	–	–	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	1	.3	–	(S)	–	–	(S)

Note: "Deep sea water" as a single mode describes shipments moving only on the open waters of the oceans or the Gulf of Mexico. Most shipments moving primarily on the open ocean are tabulated under "Inland water and deep sea".

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Average miles and ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for explanation. Calculation of average miles per shipment excludes shipments of STCC 27, Printed Matter. See "About the Data" section of this report for further explanation.
[2]CFS data for pipelines exclude most shipments of crude oil. See "About the Data" section for details of CFS coverage.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:16:47 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_6_29 PAGE: 12
TSF:TIPS92-16161729.DAT;1 5/ 7/ 96 16:16:19 UTF:TIPS93-16161729.DAT;1 5/ 7/ 96 16:16:19 META:TIPS96-16161729.DAT;1 5/ 7/ 96 16:16:38

Table 7. **Shipment Characteristics by State of Destination for State of Origin: 1993**

[For explanation of terms and meaning of abbreviations and symbols, see introductory text. Detail may not add to total because of rounding]

State of Destination	Value		Tons		Ton-miles[1]	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
Total	**136 929**	**100.0**	**195 212**	**100.0**	**46 085**	**100.0**
NEW ENGLAND STATES						
Connecticut	373	.3	113	.1	139	.3
Maine	123	.1	40	–	59	.1
Massachusetts	845	.6	161	.1	216	.5
New Hampshire	71	.1	25	–	34	.1
Rhode Island	91	.1	14	–	17	–
Vermont	42	–	6	–	8	–
MIDDLE ATLANTIC STATES						
New Jersey	1 660	1.2	756	.4	824	1.8
New York	(S)	(S)	522	.3	549	1.2
Pennsylvania	2 672	2.0	1 203	.6	1 184	2.6
EAST NORTH CENTRAL STATES						
Illinois	10 648	7.8	9 064	4.6	1 555	3.4
Indiana	2 945	2.2	1 853	.9	622	1.3
Michigan	2 810	2.1	872	.4	560	1.2
Ohio	3 073	2.2	1 381	.7	799	1.7
Wisconsin	2 068	1.5	1 083	.6	547	1.2
WEST NORTH CENTRAL STATES						
Iowa	4 387	3.2	2 885	1.5	(S)	(S)
Kansas	7 610	5.6	8 984	4.6	988	2.1
Minnesota	2 633	1.9	937	.5	554	1.2
Missouri	36 318	26.5	123 717	63.4	4 469	9.7
Nebraska	2 014	1.5	859	.4	266	.6
North Dakota	219	.2	68	–	56	.1
South Dakota	288	.2	(S)	(S)	56	.1
SOUTH ATLANTIC STATES						
Delaware	108	.1	45	–	50	.1
District of Columbia	42	–	10	–	9	–
Florida	2 824	2.1	732	.4	905	2.0
Georgia	1 998	1.5	919	.5	716	1.6
Maryland	1 492	1.1	252	.1	261	.6
North Carolina	1 746	1.3	394	.2	362	.8
South Carolina	823	.6	211	.1	171	.4
Virginia	1 641	1.2	344	.2	324	.7
West Virginia	386	.3	359	.2	320	.7
EAST SOUTH CENTRAL STATES						
Alabama	914	.7	1 440	.7	1 003	2.2
Kentucky	2 054	1.5	1 755	.9	611	1.3
Mississippi	913	.7	1 164	.6	697	1.5
Tennessee	2 323	1.7	2 857	1.5	946	2.1
WEST SOUTH CENTRAL STATES						
Arkansas	3 484	2.5	5 423	2.8	1 405	3.0
Louisiana	1 934	1.4	13 128	6.7	12 094	26.2
Oklahoma	2 528	1.8	2 374	1.2	747	1.6
Texas	8 971	6.6	5 193	2.7	4 389	9.5
MOUNTAIN STATES						
Arizona	1 087	.8	297	.2	406	.9
Colorado	1 701	1.2	560	.3	448	1.0
Idaho	263	.2	88	–	134	.3
Montana	183	.1	48	–	67	.1
Nevada	483	.4	135	.1	242	.5
New Mexico	315	.2	159	.1	142	.3
Utah	559	.4	253	.1	317	.7
Wyoming	115	.1	58	–	54	.1
PACIFIC STATES						
Alaska	(S)	(S)	(S)	–	(S)	–
California	6 842	5.0	1 635	.8	3 122	6.8
Hawaii	233	.2	25	–	100	.2
Oregon	924	.7	234	.1	476	1.0
Washington	(S)	(S)	413	.2	853	1.9

– Represents zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons. Some unpublished estimates can be derived by subtracting published data from their respective totals. However, the figures obtained by such subtraction are subject to these same limitations.

[1]Ton-miles are based on the estimated distance traveled, not on Great Circle Distance. See the "Mileage Calculations" section of this report for further explanation.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:24:43 DPVX01 TLP:BTI.T;1 11/ 29/ 95 10:29:07 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_T_7_29 PAGE: 1
TSF:TIPS92-16243227.DAT;1 5/ 7/ 96 16:24:34 UTF:TIPS93-16243227.DAT;1 5/ 7/ 96 16:24:34 META:TIPS96-16243227.DAT;1 5/ 7/ 96 16:24:41

Appendix A.
Comparability With Previous Surveys

The Commodity Flow Survey (CFS) restores a data program on commodity flows that the Census Bureau conducted as a part of its 5-year economic census program from 1963 through 1977. The Census Bureau last published commodity flow data for the 1977 Commodity Transportation Survey (CTS). Data collected for a modified 1983 CTS did not meet the Census Bureau quality standards, and were not published. Funding was not available to conduct the 1987 CTS. The following table shows a comparison of the 1977, 1983, and 1993 surveys. For the 1993 CFS, the Census Bureau incorporated improvements identified from the evaluation of previous surveys and additional research.

Item	1977	1983[1]	1993
1. Industry coverage	All manufacturers	All manufacturers Selected mining establishments Grain wholesalers Petroleum bulk plants	Manufacturers (minor exceptions) Mining (except mining services and oil and gas extraction) All wholesale Video tape distributers Catalog mail-order houses Auxiliaries (e.g., warehouses)
2. Sample size	Approximately 20,000 establishments selected from the Census of Manufactures' universe of 350,000	Approximately 71,000 establishments selected from a universe of approximately 339,000 in-scope establishments on the 1982 SSEL	Approximately 200,000 establishments selected from a universe of approximately 800,000 in-scope establishments on the 1992 SSEL
3. Survey methodology	Respondents took a sample of all shipments for the previous year. For each sampled shipment, respondents reported data, including commodity code	Respondents summarized data on their shipments for the previous year No shipment sample No reporting of commodity	Respondents took a sample of their individual outbound shipments for a 2-week period during each of the four calendar quarters of 1993 For each sampled shipment, respondents reported data, including commodity code
4. Mode of transportation	Rail	Piggyback rail Rail	Rail
	For-hire motor carrier, ICC For-hire motor carrier, non-ICC	Motor carrier	For-hire truck
	Private truck	Private truck	Private truck
	Air	Air	Air
	Water	Water	Inland water and/ or Great Lakes Deep sea water
	Pipeline		Pipeline
	Parcel delivery	Parcel delivery	Parcel delivery Courier U.S. Postal Service
	Other	Other	Other/ unknown

Item	1977	1983[1]	1993
5. Data items requested on questionnaire	For **each** shipment: Total value Value of each commodity	**Aggregated** data for 1983: Total value of products shipped and services	For **each** shipment: Total value
	Total weight Weight of each commodity	Total weight of products shipped Total percent of weight exported Total percent of weight shipped < 25 miles	Total weight
	All commodities		**Major** commodity
	Primary mode of transportation		**All** modes of transportation
	Origin (considered as establishment's mailing address)	Origin (considered as establishment's mailing address)	Origin (respondent provided; could be other than mailing address)
	Destination	For each State of destination: Total weight shipped Percent of weight, by mode Percent of weight exported	Destination Containerized (Y/ N) Hazardous material (Y/ N) Export (Y/ N)

[1]The 1983 survey results were not published because post survey evaluation uncovered significant deficiencies in the quality of the data.

Appendix B.
Reliability of the Data

RELIABILITY OF THE ESTIMATES

An estimate based on a sample survey potentially contains two types of errors—sampling and nonsampling. Sampling errors occur because the estimate is based on a sample, not on the entire universe. Nonsampling errors can be attributed to many sources in the collection and processing of the data. The accuracy of a survey result is affected jointly by the two types of errors. The following is a description of the sampling and nonsampling errors associated with the estimates computed from the 1993 Commodity Flow Survey (CFS).

MEASURES OF SAMPLING VARIABILITY

Because the estimates were based on a sample, exact agreement with the results that would be obtained from a complete census of establishments in the CFS frame using the same enumeration procedure was not expected. However, because each establishment in the Standard Statistical Establishment List (SSEL) in the specified Standard Industrial Classifications (SIC) had a known probability of being selected into the sample, it is possible to estimate the sampling variablity of the estimates.

The standard error of the estimate is a measure of the variability among the values of the estimate computed from all possible samples of the same size and design. Thus, it is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration. The coefficient of variation is the standard error of the estimate divided by the value being estimated. It is expressed as a percent. Note that measures of sampling variablity, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. Coefficients of variation for number of shipments, dollar value, shipment weight (tons), and ton-miles estimates are shown in tables B-1 through B-7 in this appendix. Standard errors for the corresponsing percentage estimates are also shown there.

The standard errors and coefficients of variation presented in these tables permit certain confidence statements about the sample estimates. The particular sample used in this survey was one of a large number of samples of the same size that could have been selected using the same design. In about 9 out of 10 (90 percent) of these samples, the estimates would differ from the results of a complete enumeration by less than 1.65 times the standard error of the estimate. In about 19 out of 20 (95 percent) of the samples, the estimates would differ from the result of a complete enumeration by less than twice the standard error of the estimate.

To illustrate the computations involved in the above confidence statements as related to the dollar value estimates, assume that an estimate of shipment value published in table 6 is $10,750 million for a particular commodity and mode of transportation, and that the coefficient of variation for this estimate, as given in appendix A, table B-6 is 1.8 percent, or 0.018. Multiplying $10,750 million by 0.018 yields the standard error, $194 million. Typical practice is to construct a 90- or 95-percent confidence interval. Multiplying $194 million by 1.65 gives $320 million. Therefore, a 90-percent confidence interval is $10,430 million to $11,070 million ($10,750 million plus or minus $320 million). If corresponding confidence intervals were constructed for all possible samples of the same size and design, approximately 9 out of 10 (90 percent) of the intervals would contain the figure obtained from a complete enumeration. Similarly, a 95-percent confidence interval is $10,362 million to $11,138 million ($10,750 million plus or minus $388 million).

To illustrate the computations involved related to the percentage estimates, assume that the percentage estimate of shipment value published in table 6 is 25 percent for a particular commodity and mode of transportation, and that the standard error of this estimate, as given in appendix A, table B-6 is 2.2 percent, or 0.022. Multiplying 2.2 percent by 1.65 gives 3.6 percent. So a 90-percent confidence interval is 21.4 percent to 28.6 percent (25 percent plus or minus 3.6 percent.) If corresponding confidence intervals were constructed for all possible samples of the same size and design, approximately 9 out of 10 (90 percent) of the intervals would contain the figure obtained from a complete enumeration.

NONSAMPLING ERRORS

As calculated for this report, the standard error and coefficient of variation measures sampling errors but does not measure any systematic biases in the data. Bias is the difference, averaged over all possible samples of the same size and design, between the estimate and the true value being estimated.

In the CFS as in other surveys nonsampling errors can be attributed to many sources: (1) inability to obtain information about all cases in the sample, (2) response errors, (3) definitional difficulties, (4) differences in the interpretation of questions, (5) mistakes in coding or recoding the data obtained, and (6) other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses.

Some sources of error are specific to the CFS: (1) Some respondents may have sampled incorrectly when selecting a sample of their documents, (2) some reporters may have used but not reported other units for their measurements—tons instead of pounds, dollars instead of thousands of dollars, etc., (3) on any shipment selected for sample, only the major commodity (by weight) was reported; secondary commodities within shipments were not recorded. Although unlikely, this might lead to a net undercoverage of some secondary commodities. These and other problems could yield a bias of undetermined amount in certain estimates.

Another possible source of bias in estimating the number of shipments, value, shipment weight (tons), and ton-miles is the imputation of missing data and for data which fail edit. Any systematic error in the imputation procedure can introduce bias into the estimates.

Although no direct measurement of the biases due to nonsampling error has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

Biases in the published estimates are due in large part to imputing data for nonrespondents and for data which fail edit. The overall imputation rate for the survey was 30 to 40 percent.

Table B–1. **Measures of Reliability for Shipment Characteristics by Mode of Transportation for State of Origin: 1993**

Mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
All modes	**7.6**	**–**	**8.1**	**–**	**11.3**	**–**	**7.2**
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	8.0	.9	6.9	–	8.5	.1	6.3
Private truck	8.2	2.2	10.1	2.4	14.5	1.9	5.4
For-hire truck	8.7	2.3	11.9	1.5	7.3	4.3	8.4
Air	28.8	–	33.0	–	31.1	–	12.2
Rail	19.4	.7	18.0	.8	20.0	4.1	5.0
Inland water	48.3	.4	22.2	2.3	33.8	7.1	23.1
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
MULTIPLE MODES							
Private truck and for-hire truck	33.3	–	(S)	–	(S)	–	(S)
Truck and air	(S)	(S)	30.3	–	46.1	.2	9.6
Truck and rail	49.4	1.9	41.7	.4	38.1	1.4	13.8
Truck and water	43.0	–	(S)	.3	(S)	(S)	(S)
Truck and pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	(D)	(D)	(D)	(D)	(D)	(D)	(D)
OTHER MODES							
Other and unknown modes	30.0	1.0	14.1	.3	23.8	.4	21.7

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

Table B–2. **Measures of Reliability for Shipment Characteristics by Total Modal Activity for State of Origin: 1993**

Mode of transportation	Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	
Total	**11.3**	**–**	**7.2**
Parcel, U.S. Postal Service, or courier, total	8.5	.1	6.3
Truck, total	6.7	5.0	14.5
Air, total	44.6	.2	9.0
Rail, total	16.0	3.6	5.2
Inland water, total	32.3	7.1	42.6
Great Lakes, total	–	–	–
Deep sea water, total	(S)	–	(S)
Pipeline, total	(S)	–	(S)
Other and unknown modes, total	23.8	.4	21.7

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:02:28 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_3_29 PAGE: 1
TSF:TIPS92-16020268.DAT;1 5/ 7/ 96 16:02:05 UTF:TIPS93-16020268.DAT;1 5/ 7/ 96 16:02:06 META:TIPS96-16020268.DAT;1 5/ 7/ 96 16:02:23

Table B–3. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993**

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
ALL MODES						
Total	**7.6**	**–**	**8.1**	**–**	**11.3**	**–**
Less than 50 miles	7.0	2.2	10.8	2.7	11.6	.9
50 to 99 miles	9.5	.6	12.1	.6	12.6	.5
100 to 249 miles	8.0	.7	10.2	.9	10.2	1.2
250 to 499 miles	7.9	.9	20.2	2.1	27.6	4.4
500 to 749 miles	9.1	.6	24.2	1.9	28.8	5.2
750 to 999 miles	28.1	2.0	12.7	.2	13.1	1.4
1,000 to 1,499 miles	27.0	1.4	7.2	.2	7.0	1.3
1,500 to 1,999 miles	24.1	.7	9.8	.1	9.7	.6
2,000 miles or more	43.8	.2	44.0	–	37.1	.3
SINGLE MODES						
Parcel, U.S. Postal Service, or courier	**8.0**	**–**	**6.9**	**–**	**8.5**	**–**
Less than 50 miles	10.9	1.4	17.2	2.4	19.0	.1
50 to 99 miles	6.7	.3	8.8	.4	8.2	.1
100 to 249 miles	12.2	1.1	11.6	1.2	9.7	.6
250 to 499 miles	13.0	1.7	15.2	2.5	14.5	1.8
500 to 749 miles	12.3	1.7	11.9	1.2	11.3	1.3
750 to 999 miles	10.8	.8	9.6	.7	9.2	1.4
1,000 to 1,499 miles	19.8	3.0	17.7	3.1	20.9	4.6
1,500 to 1,999 miles	21.9	.8	14.9	.5	15.1	1.3
2,000 miles or more	35.3	.1	30.3	.1	21.4	.2
Private truck	**8.2**	**–**	**10.1**	**–**	**14.5**	**–**
Less than 50 miles	9.5	2.8	10.1	1.5	14.2	2.8
50 to 99 miles	14.2	1.2	18.2	.8	18.5	2.1
100 to 249 miles	18.3	1.8	21.3	1.1	22.3	2.1
250 to 499 miles	14.0	1.2	24.9	.5	25.9	1.6
500 to 749 miles	17.1	.8	34.1	.4	33.8	2.7
750 to 999 miles	11.6	.2	21.2	.1	21.4	.7
1,000 to 1,499 miles	31.0	.3	41.0	.1	44.8	1.2
1,500 to 1,999 miles	29.2	.1	44.4	–	45.2	.5
2,000 miles or more	100.0	–	100.0	–	100.0	–
For-hire truck	**8.7**	**–**	**11.9**	**–**	**7.3**	**–**
Less than 50 miles	16.1	1.8	19.2	4.6	17.6	.7
50 to 99 miles	6.3	.3	12.3	1.1	13.0	.4
100 to 249 miles	8.3	1.1	12.8	1.7	12.5	1.1
250 to 499 miles	9.4	.7	7.7	1.4	6.9	1.1
500 to 749 miles	11.4	1.2	6.6	.7	6.6	.7
750 to 999 miles	14.1	1.5	10.8	.3	10.8	.6
1,000 to 1,499 miles	23.5	1.2	13.2	.5	13.2	1.4
1,500 to 1,999 miles	19.2	.6	10.6	.2	10.7	.8
2,000 miles or more	(S)	(S)	(S)	–	(S)	(S)
Air	**28.8**	**–**	**33.0**	**–**	**31.1**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	(S)	(S)	94.6	(S)	93.6	(S)
250 to 499 miles	41.8	9.7	66.3	(S)	59.7	(S)
500 to 749 miles	40.6	6.4	45.7	5.4	46.5	5.0
750 to 999 miles	(S)	(S)	65.1	(S)	65.3	(S)
1,000 to 1,499 miles	(S)	(S)	86.1	(S)	87.6	(S)
1,500 to 1,999 miles	49.8	3.9	52.4	(S)	51.3	(S)
2,000 miles or more	(S)	(S)	64.5	(S)	65.7	(S)
Rail	**19.4**	**–**	**18.0**	**–**	**20.0**	**–**
Less than 50 miles	28.3	1.6	26.1	3.2	25.3	.3
50 to 99 miles	48.1	1.0	44.3	2.9	43.9	.6
100 to 249 miles	18.6	2.2	17.7	4.6	16.9	3.2
250 to 499 miles	29.7	4.3	19.7	2.0	20.3	1.7
500 to 749 miles	24.6	3.7	40.7	4.4	39.9	5.4
750 to 999 miles	34.8	2.5	37.2	2.8	37.2	3.8
1,000 to 1,499 miles	33.4	2.1	26.1	1.4	26.0	3.6
1,500 to 1,999 miles	28.0	2.1	26.5	1.8	24.9	4.7
2,000 miles or more	–	–	–	–	–	–
Inland water	**48.3**	**–**	**22.2**	**–**	**33.8**	**–**
Less than 50 miles	(S)	(S)	(S)	(S)	(S)	(S)
50 to 99 miles	(S)	(S)	(S)	(S)	(S)	(S)
100 to 249 miles	(S)	(S)	39.2	4.1	38.5	2.0
250 to 499 miles	(S)	(S)	(S)	(S)	(S)	(S)
500 to 749 miles	(S)	(S)	48.3	10.9	49.7	14.0
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Deep sea water	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:02:28 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_3_29 PAGE: 2
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Table B–3. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993**—Con.

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
SINGLE MODES—Con.						
Deep sea water—Con.						
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Pipeline	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
MULTIPLE MODES						
Private truck and for-hire truck	**33.3**	**–**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 miles	44.0	9.3	(S)	(S)	80.6	(S)
50 to 99 miles	(S)	(S)	(S)	(S)	51.4	(S)
100 to 249 miles	31.3	8.4	29.4	8.5	28.9	9.7
250 to 499 miles	36.6	7.1	41.8	4.7	45.5	7.7
500 to 749 miles	(S)	(S)	(S)	(S)	92.5	(S)
750 to 999 miles	(S)	(S)	(S)	(S)	94.2	(S)
1,000 to 1,499 miles	(S)	(S)	89.2	(S)	90.0	(S)
1,500 to 1,999 miles	100.0	(S)	100.0	–	100.0	(S)
2,000 miles or more	–	–	–	–	–	–
Truck and air	**(S)**	**(S)**	**30.3**	**–**	**46.1**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	(S)	–	63.9	(S)	59.3	–
100 to 249 miles	(S)	(S)	26.4	1.4	26.5	.7
250 to 499 miles	35.3	4.9	14.1	4.6	13.3	3.7
500 to 749 miles	(S)	(S)	11.5	4.0	12.3	4.2
750 to 999 miles	(S)	(S)	42.1	5.7	43.3	6.1
1,000 to 1,499 miles	(S)	(S)	17.7	2.6	18.1	4.6
1,500 to 1,999 miles	(S)	(S)	(S)	(S)	(S)	(S)
2,000 miles or more	(S)	(S)	(S)	(S)	(S)	(S)
Truck and rail	**49.4**	**–**	**41.7**	**–**	**38.1**	**–**
Less than 50 miles	78.3	–	67.0	–	66.9	–
50 to 99 miles	100.0	–	100.0	–	100.0	–
100 to 249 miles	(S)	.2	(S)	(S)	80.8	–
250 to 499 miles	(S)	(S)	(S)	(S)	(S)	(S)
500 to 749 miles	(S)	(S)	44.8	4.6	41.9	2.9
750 to 999 miles	48.8	4.4	40.8	5.6	42.1	6.4
1,000 to 1,499 miles	(S)	(S)	49.1	7.1	49.4	8.4
1,500 to 1,999 miles	49.9	8.7	40.9	7.9	40.8	9.8
2,000 miles or more	–	–	–	–	–	–
Truck and water	**43.0**	**–**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)
750 to 999 miles	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 1,499 miles	80.0	(S)	96.7	–	95.8	.1
1,500 to 1,999 miles	100.0	–	100.0	–	100.0	–
2,000 miles or more	100.0	(S)	100.0	–	100.0	–
Truck and pipeline	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Rail and water	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Inland water and Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:02:28 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_3_29 PAGE: 3
TSF:TIPS92-16020268.DAT;1 5/ 7/ 96 16:02:05 UTF:TIPS93-16020268.DAT;1 5/ 7/ 96 16:02:06 META:TIPS96-16020268.DAT;1 5/ 7/ 96 16:02:23

Table B–3. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 1993**—Con.

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
MULTIPLE MODES—Con.						
Inland water and Great Lakes—Con.						
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Inland water and deep sea	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	–	–	–	–	–	–
750 to 999 miles	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	(D)	(D)	(D)	(D)	(D)	(D)
2,000 miles or more	–	–	–	–	–	–
OTHER MODES						
Other and unknown modes	**30.0**	**–**	**14.1**	**–**	**23.8**	**–**
Less than 50 miles	37.6	7.3	25.5	8.9	19.5	2.6
50 to 99 miles	29.0	2.6	34.4	2.4	37.9	1.6
100 to 249 miles	(S)	(S)	34.5	5.6	37.0	5.3
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)
750 to 999 miles	32.5	2.9	34.3	.5	33.5	1.9
1,000 to 1,499 miles	27.8	.3	28.1	.3	26.6	1.3
1,500 to 1,999 miles	(D)	(D)	(D)	(D)	(D)	(D)
2,000 miles or more	43.6	2.6	40.7	1.2	40.6	6.9

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:02:28 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_3_29 PAGE: 4
TSF:TIPS92-16020268.DAT;1 5/ 7/ 96 16:02:05 UTF:TIPS93-16020268.DAT;1 5/ 7/ 96 16:02:06 META:TIPS96-16020268.DAT;1 5/ 7/ 96 16:02:23

Table B–4. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993**

Mode of transportation and shipment size	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
ALL MODES							
Total	**7.6**	**–**	**8.1**	**–**	**11.3**	**–**	**7.2**
Less than 50 lb	10.8	.7	8.8	–	10.0	.1	7.4
50 to 99 lb	11.2	.3	10.5	–	22.9	.1	14.7
100 to 499 lb	26.9	2.4	14.2	.2	27.2	.4	11.0
500 to 749 lb	15.4	.5	9.6	.1	24.2	.1	6.7
750 to 999 lb	23.6	.4	8.9	.1	6.7	–	11.0
1,000 to 9,999 lb	10.0	2.5	8.6	.8	13.4	1.6	12.3
10,000 to 49,999 lb	6.8	2.3	9.7	2.2	8.0	4.0	6.1
50,000 to 99,999 lb	11.7	.4	17.1	1.8	11.1	.7	13.9
100,000 lb or more	17.1	.7	11.8	2.6	21.7	5.1	13.0
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	**8.0**	**–**	**6.9**	**–**	**8.5**	**–**	**6.3**
Less than 50 lb	9.9	3.1	11.8	3.3	13.0	4.2	6.6
50 to 99 lb	13.7	1.6	9.2	1.3	14.5	1.5	7.9
100 to 499 lb	9.7	1.7	11.1	2.3	15.2	2.9	9.1
500 to 749 lb	31.0	.5	27.5	1.0	19.1	.6	22.4
750 to 999 lb	25.7	.3	37.1	1.3	28.3	.5	15.4
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Private truck	**8.2**	**–**	**10.1**	**–**	**14.5**	**–**	**5.4**
Less than 50 lb	13.9	.8	14.7	–	18.1	–	10.9
50 to 99 lb	14.8	.5	16.6	.1	29.9	.1	13.9
100 to 499 lb	11.6	1.4	15.4	.3	12.8	.4	4.9
500 to 749 lb	14.6	.7	10.9	.1	11.8	.2	6.9
750 to 999 lb	13.1	.4	13.2	.1	14.6	.2	11.3
1,000 to 9,999 lb	13.2	2.4	13.1	1.0	16.9	1.5	7.8
10,000 to 49,999 lb	12.8	3.3	11.4	3.5	18.2	3.7	9.7
50,000 to 99,999 lb	11.7	.4	18.5	2.1	18.5	1.7	16.4
100,000 lb or more	26.2	.3	38.9	3.0	43.1	2.6	25.5
For-hire truck	**8.7**	**–**	**11.9**	**–**	**7.3**	**–**	**8.4**
Less than 50 lb	29.2	.6	37.6	–	(S)	.2	(S)
50 to 99 lb	34.7	.4	33.3	.1	(S)	.3	(S)
100 to 499 lb	40.6	3.5	27.0	.4	40.9	1.0	10.0
500 to 749 lb	15.4	.9	9.2	.1	13.2	.1	5.2
750 to 999 lb	36.8	1.0	14.7	.1	7.6	–	11.6
1,000 to 9,999 lb	9.8	2.4	5.8	1.1	9.8	1.3	4.9
10,000 to 49,999 lb	6.9	2.5	13.1	1.8	9.5	1.8	8.9
50,000 to 99,999 lb	12.3	.3	17.7	2.1	13.6	.9	11.7
100,000 lb or more	41.4	.3	26.9	1.2	23.8	1.2	28.9
Air	**28.8**	**–**	**33.0**	**–**	**31.1**	**–**	**12.2**
Less than 50 lb	43.1	10.9	30.6	8.0	56.1	(S)	(S)
50 to 99 lb	40.2	9.6	66.1	9.6	68.7	(S)	(S)
100 to 499 lb	41.9	9.8	43.4	10.6	41.1	10.8	25.4
500 to 749 lb	(S)	(S)	82.8	7.5	92.8	(S)	(S)
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Rail	**19.4**	**–**	**18.0**	**–**	**20.0**	**–**	**5.0**
Less than 50 lb	86.8	–	79.3	–	99.8	–	(S)
50 to 99 lb	85.2	–	78.8	–	75.7	–	(S)
100 to 499 lb	(S)	(S)	68.9	–	60.9	–	(S)
500 to 749 lb	55.2	–	54.2	–	59.9	–	(S)
750 to 999 lb	100.0	–	100.0	–	100.0	–	(S)
1,000 to 9,999 lb	40.7	7.4	39.0	.3	43.9	.5	20.0
10,000 to 49,999 lb	16.4	4.1	17.3	.8	16.8	2.0	3.8
50,000 to 99,999 lb	32.7	1.0	26.1	.3	24.0	.5	12.0
100,000 lb or more	18.7	6.2	19.1	1.1	22.2	2.2	7.7
Inland water	**48.3**	**–**	**22.2**	**–**	**33.8**	**–**	**23.1**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	100.0	–	(S)	(S)	100.0	–	(S)
100,000 lb or more	48.3	10.5	22.2	10.5	33.8	10.5	24.0
Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Deep sea water	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:06:26 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_4_29 PAGE: 1
TSF:TIPS92-16060854.DAT;1 5/ 7/ 96 16:06:10 UTF:TIPS93-16060854.DAT;1 5/ 7/ 96 16:06:10 META:TIPS96-16060854.DAT;1 5/ 7/ 96 16:06:23

Table B–4. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993**—Con.

Mode of transportation and shipment size	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SINGLE MODES—Con.							
Deep sea water—Con.							
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Pipeline	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
MULTIPLE MODES							
Private truck and for-hire truck	**33.3**	**–**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 lb	46.2	7.6	36.3	.7	42.0	.8	18.7
50 to 99 lb	(S)	(S)	44.9	.2	49.9	.2	23.9
100 to 499 lb	(S)	(S)	32.2	2.4	34.2	3.3	21.7
500 to 749 lb	(S)	(S)	(S)	(S)	72.4	(S)	(S)
750 to 999 lb	(S)	(S)	61.3	.9	80.4	(S)	(S)
1,000 to 9,999 lb	40.9	7.1	32.4	10.4	49.6	8.9	22.5
10,000 to 49,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
50,000 to 99,999 lb	100.0	.6	(S)	(S)	100.0	(S)	(S)
100,000 lb or more	–	–	–	–	–	–	–
Truck and air	**(S)**	**(S)**	**30.3**	**–**	**46.1**	**–**	**9.6**
Less than 50 lb	(S)	(S)	15.1	4.6	19.2	6.6	4.7
50 to 99 lb	49.3	2.8	17.5	3.0	24.7	3.5	7.0
100 to 499 lb	(S)	(S)	45.4	11.4	(S)	(S)	(S)
500 to 749 lb	33.4	1.4	34.9	1.1	34.7	1.3	8.9
750 to 999 lb	(S)	(S)	31.5	1.3	30.4	1.3	16.3
1,000 to 9,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
10,000 to 49,999 lb	(S)	(S)	68.1	.4	66.7	.7	(S)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Truck and rail	**49.4**	**–**	**41.7**	**–**	**38.1**	**–**	**13.8**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	100.0	–	100.0	–	100.0	–	(S)
100 to 499 lb	(S)	(S)	70.0	–	86.5	–	(S)
500 to 749 lb	(S)	(S)	99.2	–	99.5	–	(S)
750 to 999 lb	(S)	(S)	(S)	(S)	(S)	.1	(S)
1,000 to 9,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
10,000 to 49,999 lb	(S)	(S)	26.8	16.1	27.1	15.6	7.1
50,000 to 99,999 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
100,000 lb or more	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	**43.0**	**–**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 lb	(S)	(S)	86.6	.2	68.9	–	(S)
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	100.0	.6	100.0	–	100.0	–	(S)
1,000 to 9,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10,000 to 49,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and pipeline	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50,000 to 99,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100,000 lb or more	–	–	–	–	–	–	–
Rail and water	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Inland water and Great Lakes	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/96 16:06:26 DPVX01 TLP:BTI.TCV;1 11/29/95 10:29:21 DATA:TIPS.INP;1070 5/ 7/96 12:34:44 UPF:GPO_TCV_4_29 PAGE: 2
TSF:TIPS92-16060854.DAT;1 5/ 7/96 16:06:10 UTF:TIPS93-16060854.DAT;1 5/ 7/96 16:06:10 META:TIPS96-16060854.DAT;1 5/ 7/96 16:06:23

Table B–4. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Size for State of Origin: 1993**—Con.

Mode of transportation and shipment size	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
MULTIPLE MODES—Con.							
Inland water and Great Lakes—Con.							
1,000 to 9,999 lb	–	–	–	–	–	–	–
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Inland water and deep sea	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10,000 to 49,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
OTHER MODES							
Other and unknown modes	**30.0**	**–**	**14.1**	**–**	**23.8**	**–**	**21.7**
Less than 50 lb	(S)	(S)	42.2	.4	(S)	.4	(S)
50 to 99 lb	(S)	(S)	47.9	.2	(S)	.1	(S)
100 to 499 lb	32.0	1.1	41.4	.6	(S)	.4	(S)
500 to 749 lb	(S)	(S)	(S)	(S)	(S)	(S)	(S)
750 to 999 lb	(S)	(S)	(S)	(S)	(S)	.4	(S)
1,000 to 9,999 lb	49.2	4.9	12.4	3.5	32.8	7.9	23.0
10,000 to 49,999 lb	29.8	8.6	18.6	8.5	29.8	8.5	18.9
50,000 to 99,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:06:26 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_4_29 PAGE: 3
TSF:TIPS92-16060854.DAT;1 5/ 7/ 96 16:06:10 UTF:TIPS93-16060854.DAT;1 5/ 7/ 96 16:06:10 META:TIPS96-16060854.DAT;1 5/ 7/ 96 16:06:23

Table B–5. **Estimated Coefficients of Variation for Shipment Characteristics by Commodity for State of Origin: 1993**

STCC code	Commodity description	Value	Tons	Ton-miles	Average miles per shipment
	ALL COMMODITIES				
	Total	**7.6**	**8.1**	**11.3**	**7.2**
01	Farm products	18.0	26.1	40.9	20.2
08	Forest products	(D)	(D)	(D)	(D)
09	Fresh fish or other marine products	(S)	(S)	69.7	(S)
10	Metallic ores	13.6	14.3	30.2	17.4
11	Coal	(D)	(D)	(D)	(D)
13	Crude petroleum, natural gas, or gasoline	(S)	(S)	(S)	(S)
14	Nonmetallic minerals	37.1	17.5	20.1	26.5
19	Ordnance or accessories	24.8	24.4	29.1	14.7
20	Food or kindred products	10.7	11.2	11.9	25.5
21	Tobacco products, excluding insecticides	38.0	42.8	38.9	(S)
22	Textile mill products	14.5	18.8	19.2	13.3
23	Apparel or other finished textile products	16.2	12.9	13.6	6.6
24	Lumber or wood products, excluding furniture	22.1	23.4	25.4	12.2
25	Furniture or fixtures	18.0	25.7	27.7	21.2
26	Pulp, paper, or allied products	14.8	19.0	15.6	23.1
27	Printed matter	(S)	(S)	(S)	–
28	Chemicals or allied products	10.4	11.1	14.8	13.4
29	Petroleum or coal products	32.8	16.4	12.9	23.9
30	Rubber or miscellaneous plastics products	6.5	15.1	17.9	19.6
31	Leather or leather products	22.7	17.3	22.0	5.5
32	Clay, concrete, glass, or stone products	10.5	17.6	26.9	21.4
33	Primary metal products	7.7	15.0	16.4	19.7
34	Fabricated metal products	15.0	6.3	6.6	10.2
35	Machinery, excluding electrical	8.5	12.8	13.9	17.1
36	Electrical machinery, equipment, or supplies	13.3	10.4	12.6	11.2
37	Transportation equipment	26.9	22.3	28.5	19.1
38	Instruments, photographic goods, optical goods, watches, or clocks	19.1	30.1	20.4	14.5
39	Miscellaneous products of manufacturing	39.7	12.4	12.3	4.8
40	Waste or scrap materials	21.3	29.7	31.1	36.6
41	Miscellaneous freight shipments	47.2	(S)	(S)	(S)
42	Containers, carriers or devices, shipping, returned empty	28.2	24.4	55.1	(S)
48	Waste hazardous materials or waste hazardous substances	(D)	(D)	(D)	(D)
—	Commodity unknown	(S)	35.6	45.5	14.8

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:12:27 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_5_29 PAGE: 1
TSF:TIPS92-16121446.DAT;1 5/ 7/ 96 16:12:16 UTF:TIPS93-16121446.DAT;1 5/ 7/ 96 16:12:16 META:TIPS96-16121446.DAT;1 5/ 7/ 96 16:12:25

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
ALL COMMODITIES							
Total	**7.6**	**–**	**8.1**	**–**	**11.3**	**–**	**7.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	8.0	.9	6.9	–	8.5	.1	6.3
Private truck	8.2	2.2	10.1	2.4	14.5	1.9	5.4
For-hire truck	8.7	2.3	11.9	1.5	7.3	4.3	8.4
Air	28.8	–	33.0	–	31.1	–	12.2
Rail	19.4	.7	18.0	.8	20.0	4.1	5.0
Inland water	48.3	.4	22.2	2.3	33.8	7.1	23.1
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	33.3	–	(S)	–	(S)	–	(S)
Truck and air	(S)	(S)	30.3	–	46.1	.2	9.6
Truck and rail	49.4	1.9	41.7	.4	38.1	1.4	13.8
Truck and water	43.0	–	(S)	(S)	(S)	(S)	(S)
Truck and pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other Modes							
Other and unknown modes	30.0	1.0	14.1	.3	23.8	.4	21.7
STCC 01, FARM PRODUCTS							
Total	**18.0**	**–**	**26.1**	**–**	**40.9**	**–**	**20.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	–	57.9	–	(S)
Private truck	28.6	7.4	28.3	7.8	36.6	9.8	16.1
For-hire truck	23.5	7.5	23.3	11.1	17.2	13.6	32.6
Air	–	–	–	–	–	–	–
Rail	48.3	3.8	48.1	5.0	(S)	(S)	(S)
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	100.0	–	100.0	–	100.0	–	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	49.5	.7	(S)	(S)	(S)	.4	(S)
STCC 08, FOREST PRODUCTS							
Total	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–

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Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 09, FRESH FISH OR OTHER MARINE PRODUCTS							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	66.7	(S)	67.2	(S)	91.0	10.5	(S)
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	100.0	(S)	100.0	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 10, METALLIC ORES							
Total	**13.6**	**–**	**14.3**	**–**	**30.2**	**–**	**17.4**
Single Modes							
Parcel, U.S. Postal Service, or courier	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	23.6	8.9	19.2	9.4	21.6	8.8	(S)
Air	–	–	–	–	–	–	–
Rail	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 11, COAL							
Total	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	–	–	–	–	–	–	–
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 2
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 13, CRUDE PETROLEUM, NATURAL GAS, OR GASOLINE							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 14, NONMETALLIC MINERALS							
Total	**37.1**	**–**	**17.5**	**–**	**20.1**	**–**	**26.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	90.0	–	93.3	–	91.7	–	(S)
Private truck	48.8	5.7	18.4	5.7	29.2	8.0	30.6
For-hire truck	18.8	5.1	30.2	4.7	40.2	6.9	37.3
Air	–	–	–	–	–	–	–
Rail	37.9	1.5	37.6	.7	40.8	5.7	24.8
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	48.4	.6	45.3	.9	(S)
STCC 19, ORDNANCE OR ACCESSORIES							
Total	**24.8**	**–**	**24.4**	**–**	**29.1**	**–**	**14.7**
Single Modes							
Parcel, U.S. Postal Service, or courier	40.6	1.3	34.9	.5	49.7	.6	16.1
Private truck	67.8	(S)	58.5	(S)	61.4	–	(S)
For-hire truck	25.7	12.0	25.4	12.4	29.4	12.3	5.8
Air	–	–	–	–	–	–	–
Rail	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	100.0	(S)	100.0	1.7	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 3
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 20, FOOD OR KINDRED PRODUCTS							
Total	**10.7**	**–**	**11.2**	**–**	**11.9**	**–**	**25.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	(S)	(S)	.2	(S)
Private truck	13.6	5.2	14.1	5.3	22.6	5.1	7.9
For-hire truck	16.5	4.8	14.9	4.0	13.8	6.3	15.1
Air	–	–	–	–	–	–	–
Rail	27.2	1.5	28.8	3.2	29.6	7.7	15.7
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	–	(S)	–	(S)
Truck and air	(S)	–	(S)	–	(S)	–	(S)
Truck and rail	35.6	–	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	29.5	1.9	30.5	2.6	39.4	1.9	25.8
STCC 21, TOBACCO PRODUCTS, EXCLUDING INSECTICIDES							
Total	**38.0**	**–**	**42.8**	**–**	**38.9**	**–**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	57.5	(S)	51.3	(S)	(S)
Private truck	46.8	15.9	49.4	17.5	(S)	(S)	(S)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 22, TEXTILE MILL PRODUCTS							
Total	**14.5**	**–**	**18.8**	**–**	**19.2**	**–**	**13.3**
Single Modes							
Parcel, U.S. Postal Service, or courier	26.5	7.8	30.7	6.1	24.2	7.5	13.3
Private truck	28.6	7.2	36.4	8.9	30.8	6.0	37.6
For-hire truck	29.4	8.7	27.0	9.5	25.8	9.9	16.7
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	61.0	–	71.8	.1	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 4
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 23, APPAREL OR OTHER FINISHED TEXTILE PRODUCTS							
Total	**16.2**	**–**	**12.9**	**–**	**13.6**	**–**	**6.6**
Single Modes							
Parcel, U.S. Postal Service, or courier	12.4	4.9	11.6	2.1	13.0	3.7	7.3
Private truck	17.5	2.4	13.4	2.5	16.4	2.1	40.8
For-hire truck	23.3	5.9	18.1	4.5	19.1	5.6	9.3
Air	–	–	–	–	–	–	–
Rail	99.4	–	95.1	–	94.0	–	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	100.0	–	100.0	–	100.0	–	(S)
Truck and air	35.8	.2	24.9	.1	23.7	.1	6.0
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	(S)
STCC 24, LUMBER OR WOOD PRODUCTS, EXCLUDING FURNITURE							
Total	**22.1**	**–**	**23.4**	**–**	**25.4**	**–**	**12.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	18.3	.4	17.6	–	23.3	.1	5.0
Private truck	22.7	3.0	26.0	3.9	30.4	3.6	12.4
For-hire truck	27.4	2.6	26.6	4.0	31.1	4.6	10.5
Air	–	–	–	–	–	–	–
Rail	17.4	.3	22.4	.9	22.9	3.8	15.6
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	(S)	.5	(S)
Truck and air	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other Modes							
Other and unknown modes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 25, FURNITURE OR FIXTURES							
Total	**18.0**	**–**	**25.7**	**–**	**27.7**	**–**	**21.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	21.8	1.4	8.1	.5	12.9	.8	6.0
Private truck	18.3	2.8	28.8	3.8	29.0	4.1	20.0
For-hire truck	19.9	3.5	27.2	5.0	31.3	6.7	14.4
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	.4	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	40.2	.5	(S)	(S)	(S)	1.6	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 5
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 26, PULP, PAPER, OR ALLIED PRODUCTS							
Total	**14.8**	**–**	**19.0**	**–**	**15.6**	**–**	**23.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	19.5	.4	23.7	.1	17.1	.1	12.6
Private truck	20.7	4.6	27.9	4.4	23.1	2.2	13.9
For-hire truck	18.9	4.6	16.7	4.6	17.0	4.3	49.1
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	(S)	77.6	–	(S)
Truck and air	36.5	–	40.2	–	44.8	–	16.5
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	(S)	(S)	–	(S)	.2	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	28.9	.7	(S)	(S)	(S)	(S)	(S)
STCC 27, PRINTED MATTER							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**–**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	(S)	(S)	(S)	–
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	–
For-hire truck	(S)	(S)	(S)	(S)	(S)	(S)	–
Air	(S)	–	77.5	–	63.1	–	–
Rail	(S)	–	(S)	(S)	(S)	.1	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	69.0	–	82.4	–	69.4	–	–
Truck and air	(S)	(S)	(S)	(S)	(S)	(S)	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	–
STCC 28, CHEMICALS OR ALLIED PRODUCTS							
Total	**10.4**	**–**	**11.1**	**–**	**14.8**	**–**	**13.4**
Single Modes							
Parcel, U.S. Postal Service, or courier	17.5	3.6	17.2	.2	17.7	.2	11.2
Private truck	15.9	3.0	15.1	3.6	19.4	2.6	25.8
For-hire truck	15.7	4.5	14.8	3.0	18.4	4.3	10.0
Air	100.0	–	100.0	–	100.0	–	(S)
Rail	18.6	.3	11.1	1.5	16.2	3.1	11.8
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	34.6	.1	(S)	(S)	(S)	–	(S)
Truck and air	36.9	.4	14.1	–	22.3	.1	5.6
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	100.0	–	(S)	–	100.0	–	(S)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	34.9	.3	32.0	.2	41.0

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 6
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 29, PETROLEUM OR COAL PRODUCTS							
Total	**32.8**	**–**	**16.4**	**–**	**12.9**	**–**	**23.9**
Single Modes							
Parcel, U.S. Postal Service, or courier	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Private truck	37.0	3.5	19.0	4.6	12.4	7.3	18.4
For-hire truck	18.1	3.5	24.9	4.9	27.3	7.7	9.9
Air	–	–	–	–	–	–	–
Rail	47.0	–	44.6	–	45.5	.5	26.5
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	–	62.7	–	(S)
Truck and air	100.0	–	100.0	–	100.0	–	(S)
Truck and rail	(S)	–	(S)	–	100.0	–	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	38.1	.4	44.8	.7	47.2	.2	(S)
STCC 30, RUBBER OR MISCELLANEOUS PLASTICS PRODUCTS							
Total	**6.5**	**–**	**15.1**	**–**	**17.9**	**–**	**19.6**
Single Modes							
Parcel, U.S. Postal Service, or courier	25.6	2.4	13.3	.5	18.6	.8	13.2
Private truck	16.7	3.2	21.7	3.3	21.8	2.2	14.7
For-hire truck	6.4	3.0	15.3	2.4	15.6	3.7	12.5
Air	74.0	–	66.7	–	67.7	–	(S)
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and air	27.7	.1	30.5	.1	20.7	.1	9.6
Truck and rail	40.0	.2	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	100.0	–	100.0	–	100.0	.1	(S)
Other Modes							
Other and unknown modes	27.5	.7	34.9	1.0	27.4	.4	(S)
STCC 31, LEATHER OR LEATHER PRODUCTS							
Total	**22.7**	**–**	**17.3**	**–**	**22.0**	**–**	**5.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	40.9	3.9	35.9	2.8	38.7	3.1	5.2
Private truck	18.1	6.8	22.4	8.0	18.4	7.2	23.2
For-hire truck	26.5	7.7	27.4	8.3	25.9	7.2	27.6
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	39.6	–	45.8	.1	25.0
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	43.9	.3	56.2	(S)	44.1	.3	27.9

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 7
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 32, CLAY, CONCRETE, GLASS, OR STONE PRODUCTS							
Total	**10.5**	**–**	**17.6**	**–**	**26.9**	**–**	**21.4**
Single Modes							
Parcel, U.S. Postal Service, or courier	34.8	1.8	40.7	–	44.7	.1	14.6
Private truck	11.5	3.1	21.4	7.7	18.8	6.1	26.4
For-hire truck	13.0	2.2	26.6	5.5	19.1	8.7	24.9
Air	–	–	–	–	–	–	–
Rail	38.4	1.2	37.4	1.3	39.0	7.9	20.9
Inland water	(S)	(S)	38.0	6.1	42.1	16.1	25.2
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	66.3	–	(S)	–	91.6	–	(S)
Truck and air	(S)	(S)	57.4	–	56.2	–	(S)
Truck and rail	46.9	.3	35.8	–	35.6	.2	24.1
Truck and water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	39.4	.8	(S)	(S)	30.1	.1	(S)
STCC 33, PRIMARY METAL PRODUCTS							
Total	**7.7**	**–**	**15.0**	**–**	**16.4**	**–**	**19.7**
Single Modes							
Parcel, U.S. Postal Service, or courier	23.5	.9	28.8	.1	29.5	.1	14.3
Private truck	8.1	3.1	27.7	4.2	22.0	2.4	9.8
For-hire truck	13.5	3.9	12.7	4.7	21.2	6.8	16.9
Air	100.0	–	100.0	–	100.0	–	(S)
Rail	25.0	1.8	30.3	2.2	27.7	5.5	17.7
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	–	(S)	–	(S)
Truck and air	30.5	–	34.2	–	39.6	–	9.4
Truck and rail	47.0	1.0	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	–	(S)	–	100.0	–	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	25.9	.5	41.8	.6	46.1	.4	34.0
STCC 34, FABRICATED METAL PRODUCTS							
Total	**15.0**	**–**	**6.3**	**–**	**6.6**	**–**	**10.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	42.5	2.4	29.7	.7	38.3	1.0	7.5
Private truck	29.6	4.2	18.5	3.6	18.3	1.9	15.0
For-hire truck	12.8	3.7	6.8	3.7	7.5	3.6	9.3
Air	100.0	–	100.0	–	100.0	–	(S)
Rail	38.4	.5	46.4	.4	46.0	1.0	20.1
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	74.5	–	75.7	–	75.7	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	71.1	–	95.4	–	82.5	–	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	18.1	.5	22.8	.4	35.6	.3	18.1

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 8
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 35, MACHINERY, EXCLUDING ELECTRICAL							
Total	**8.5**	**–**	**12.8**	**–**	**13.9**	**–**	**17.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	23.2	3.3	31.2	1.6	23.1	1.3	20.4
Private truck	23.9	4.2	28.0	5.9	31.8	4.3	16.6
For-hire truck	8.3	5.2	11.6	6.1	17.3	4.5	21.1
Air	(S)	(S)	50.6	–	54.1	–	(S)
Rail	(S)	–	88.4	–	87.6	–	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	48.6	–	42.6	.1	43.1	.1	27.1
Truck and air	22.8	.6	24.7	.2	25.6	.3	5.4
Truck and rail	–	–	–	–	–	–	–
Truck and water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	39.6	2.0	32.1
STCC 36, ELECTRICAL MACHINERY, EQUIPMENT, OR SUPPLIES							
Total	**13.3**	**–**	**10.4**	**–**	**12.6**	**–**	**11.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	10.8	3.2	16.0	.9	17.3	.9	9.1
Private truck	16.6	2.3	17.9	4.3	21.9	2.1	29.2
For-hire truck	19.7	5.2	14.8	4.6	14.1	3.7	8.5
Air	31.7	–	45.5	–	33.7	–	16.4
Rail	33.0	.9	38.8	1.2	44.9	2.9	16.1
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	32.2	1.0	18.9	–	19.3	.1	5.6
Truck and rail	–	–	–	–	–	–	–
Truck and water	(S)	(S)	(S)	(S)	(S)	.2	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	30.1	.2	28.9	.1	22.0	.1	34.5
STCC 37, TRANSPORTATION EQUIPMENT							
Total	**26.9**	**–**	**22.3**	**–**	**28.5**	**–**	**19.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	39.0	2.0	28.8	.6	32.9	.6	5.9
Private truck	21.2	2.8	36.6	3.8	32.4	1.9	26.9
For-hire truck	24.6	6.6	20.9	6.1	24.5	7.6	16.8
Air	(S)	–	71.2	–	77.3	–	(S)
Rail	40.9	2.3	34.5	2.0	38.3	4.5	15.2
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	90.0	–	83.1	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	.3	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	–	100.0	–	100.0	–	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	35.4	.7	46.3	1.5	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 9
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 38, INSTRUMENTS, PHOTOGRAPHIC GOODS, OPTICAL GOODS, WATCHES, OR CLOCKS							
Total	**19.1**	**–**	**30.1**	**–**	**20.4**	**–**	**14.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	18.8	4.6	20.8	3.5	28.8	3.5	13.6
Private truck	49.1	5.2	(S)	(S)	(S)	(S)	(S)
For-hire truck	15.8	4.3	21.9	7.8	12.7	6.7	23.4
Air	(S)	(S)	85.6	(S)	70.3	.2	(S)
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	38.2	3.1	34.7	1.1	35.1	1.8	2.5
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	(S)	(S)
STCC 39, MISCELLANEOUS PRODUCTS OF MANUFACTURING							
Total	**39.7**	**–**	**12.4**	**–**	**12.3**	**–**	**4.8**
Single Modes							
Parcel, U.S. Postal Service, or courier	13.0	7.5	13.1	2.5	14.8	3.4	4.2
Private truck	13.9	2.3	24.2	4.2	25.4	2.0	20.0
For-hire truck	13.5	5.3	11.1	4.6	16.2	4.8	8.5
Air	100.0	–	100.0	–	100.0	–	(S)
Rail	(S)	–	(S)	(S)	(S)	.5	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	100.0	–	100.0	–	100.0	–	(S)
Truck and air	(S)	(S)	42.5	.1	38.5	.2	9.1
Truck and rail	(S)	(S)	(S)	(S)	100.0	.3	(S)
Truck and water	100.0	–	100.0	–	100.0	–	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	44.3	1.3	(S)	(S)	(S)	(S)	(S)
STCC 40, WASTE OR SCRAP MATERIALS							
Total	**21.3**	**–**	**29.7**	**–**	**31.1**	**–**	**36.6**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	48.4	4.3	(S)	(S)	35.3	2.4	(S)
For-hire truck	25.0	9.4	(S)	(S)	49.4	11.4	14.9
Air	–	–	–	–	–	–	–
Rail	36.4	7.4	34.3	9.7	29.6	9.3	45.0
Inland water	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	(S)	.4	(S)

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 10
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
STCC 41, MISCELLANEOUS FREIGHT SHIPMENTS							
Total	**47.2**	**–**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	35.9	9.8	48.5	3.0	27.8	.8	19.8
Private truck	48.8	.9	(S)	(S)	(S)	(S)	(S)
For-hire truck	48.4	10.2	(S)	(S)	(S)	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	54.3	.1	83.2	–	84.1	.4	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	(S)	(S)	74.3	1.9	(S)
STCC 42, CONTAINERS, CARRIERS OR DEVICES, SHIPPING, RETURNED EMPTY							
Total	**28.2**	**–**	**24.4**	**–**	**55.1**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	37.7	15.0	34.5	14.5	83.0	(S)	(S)
For-hire truck	59.6	(S)	50.9	(S)	59.0	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 48, WASTE HAZARDOUS MATERIALS OR WASTE HAZARDOUS SUBSTANCES							
Total	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Single Modes							
Parcel, U.S. Postal Service, or courier	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 11
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity and Mode of Transportation for State of Origin: 1993**—Con.

STCC code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
COMMODITY UNKNOWN							
Total	**(S)**	**(S)**	**35.6**	**–**	**45.5**	**–**	**14.8**
Single Modes							
Parcel, U.S. Postal Service, or courier	46.1	9.3	44.4	3.2	(S)	(S)	(S)
Private truck	47.8	13.7	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	45.2	10.1	48.0	12.2	20.6
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	71.2	(S)	82.3	.2	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	43.6	1.5	59.1	(S)	66.6	1.0	(S)

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/ 96 16:20:56 DPVX01 TLP:BTI.TCV;1 11/ 29/ 95 10:29:21 DATA:TIPS.INP;1070 5/ 7/ 96 12:34:44 UPF:GPO_TCV_6_29 PAGE: 12
TSF:TIPS92-16203131.DAT;1 5/ 7/ 96 16:20:33 UTF:TIPS93-16203131.DAT;1 5/ 7/ 96 16:20:33 META:TIPS96-16203131.DAT;1 5/ 7/ 96 16:20:49

Table B–7. **Measures of Reliability for Shipment Characteristics by State of Destination for State of Origin: 1993**

State of Destination	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
Total	**7.6**	**–**	**8.1**	**–**	**11.3**	**–**
NEW ENGLAND STATES						
Connecticut	23.8	–	32.0	–	30.1	.1
Maine	26.7	–	31.1	–	30.6	–
Massachusetts	12.5	.1	13.0	–	13.6	.1
New Hampshire	20.9	–	43.1	–	44.3	–
Rhode Island	31.2	–	46.8	–	46.8	–
Vermont	21.3	–	31.6	–	29.8	–
MIDDLE ATLANTIC STATES						
New Jersey	13.8	.2	34.4	.1	34.7	.3
New York	(S)	(S)	14.6	.1	14.5	.2
Pennsylvania	16.2	.3	21.4	.1	22.0	.7
EAST NORTH CENTRAL STATES						
Illinois	6.2	.5	10.1	.4	10.4	.5
Indiana	8.9	.2	12.9	.1	11.1	.1
Michigan	15.9	.4	8.6	.1	8.5	.2
Ohio	11.9	.3	13.2	.1	11.2	.2
Wisconsin	14.6	.2	13.7	.1	11.6	.2
WEST NORTH CENTRAL STATES						
Iowa	22.5	.6	32.3	.4	(S)	(S)
Kansas	4.9	.4	11.6	.3	11.4	.3
Minnesota	35.3	.4	18.1	.1	16.4	.4
Missouri	5.5	2.0	11.2	3.1	11.5	1.6
Nebraska	16.2	.2	20.8	.1	20.8	.1
North Dakota	16.7	–	30.8	–	24.1	–
South Dakota	23.5	.1	(S)	(S)	34.8	.1
SOUTH ATLANTIC STATES						
Delaware	22.4	–	30.8	–	35.9	–
District of Columbia	24.7	–	42.3	–	41.1	–
Florida	13.0	.2	10.9	.1	11.5	.4
Georgia	13.7	.2	21.6	.1	21.0	.4
Maryland	35.8	.3	12.3	–	13.3	.1
North Carolina	16.9	.2	10.7	–	12.0	.1
South Carolina	15.8	.1	14.1	–	14.1	.1
Virginia	27.4	.4	22.7	–	23.2	.1
West Virginia	39.1	.1	47.5	.1	48.8	.4
EAST SOUTH CENTRAL STATES						
Alabama	11.6	.1	22.6	.2	26.6	.5
Kentucky	13.2	.3	22.1	.2	20.3	.3
Mississippi	29.1	.1	35.4	.2	37.5	.5
Tennessee	11.3	.2	22.7	.5	14.2	.4
WEST SOUTH CENTRAL STATES						
Arkansas	16.3	.4	11.9	.3	18.6	.5
Louisiana	33.0	.4	39.2	2.5	41.0	6.9
Oklahoma	11.0	.1	21.9	.2	21.9	.4
Texas	15.5	.7	19.1	.5	20.5	2.3
MOUNTAIN STATES						
Arizona	15.7	.1	24.6	–	24.0	.2
Colorado	15.3	.2	23.8	.1	27.7	.3
Idaho	28.8	.1	45.1	–	48.0	.1
Montana	37.0	–	25.9	–	26.4	–
Nevada	29.9	.1	35.2	–	39.5	.3
New Mexico	23.0	.1	16.9	–	16.2	.1
Utah	17.7	.1	34.3	–	35.8	.3
Wyoming	19.8	–	37.5	–	37.6	–
PACIFIC STATES						
Alaska	(S)	(S)	(S)	–	(S)	.2
California	23.3	.7	9.1	.1	9.8	1.0
Hawaii	39.4	.1	42.1	–	41.7	.1
Oregon	40.4	.2	16.1	–	14.7	.2
Washington	(S)	(S)	18.3	.1	17.7	.4

Note: For description of the development and uses of measures of reliability, see Appendix B, Reliability of the Data.

– Represents data cell equal to zero or less than 1 unit of measure.
(D) Denotes figures withheld to avoid disclosing data for individual companies.
(S) Data do not meet publication standards due to high sampling variability or other reasons.

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Appendix C.
Sample Design, Survey Methodology, and Estimation

SAMPLE DESIGN

The sample for the Commodity Flow Survey (CFS) is a stratified three-stage probability design where the first-stage sample units are establishments, the second-stage units are 2-week periods of 1993, and the third-stage units are shipments. In a probability sample, (1) there are distinct samples that can be selected, (2) each sample has a known probability of selection, and (3) one of the distinct samples is chosen.

In the first stage, approximately 200,000 domestic establishments were selected from a universe of 800,000 establishments engaged in mining, manufacturing, wholesale, and selected retail and service activities, as well as auxiliaries (e.g., warehouses) of multiestablishment companies. Establishments classified in farming, forestry, fishing, oil and gas extraction, government, construction, or transportation, and most establishments in retail and services are not covered by the CFS.

Establishments were selected from the 1992 Standard Statistical Establishment List (SSEL) of business establishments with paid employees. The SSEL, maintained by the Bureau of the Census, is a central multipurpose computerized name and address file of all known multiestablishment firms, and single-establishment employer firms. Establishments having 1991 payroll and classified in the kinds of business of interest to the survey were eligible for selection.

The establishments in the survey universe were stratified by Standard Industrial Classification[1] (SIC), National Transportation Analysis Region (NTAR), and Type of Operation Code (TOC). (The Department of Transportation (DOT) developed the NTAR's to create geographic regions that could be used in conjunction with other DOT data to measure and analyze nationwide patterns of transportation demands and activities.) Within each stratum (1) the establishments were divided into certainty and noncertainty establishments based on employment size, (2) certainties (typically large firms) were automatically selected, and (3) a sample of noncertainty establishments was selected with probability proportional to estimated size, where the measure of size was based on annual payroll. The manner in which the sample was selected ensured that, if an establishment was twice as large as another establishment, it would typically have twice the chance of being selected. The final sample contained 106,362 certainty establishments and 90,814 noncertainty establishments.

In the second stage, establishments selected for the CFS were asked to report for a predetermined 2-week period in each of the four quarters of calendar year 1993. Entire 2-week periods were used to reduce the effect of any daily or weekly bias. Each week of the quarter began a different 2-week reporting period, resulting in 13 possible reporting periods originating in the first quarter. Each sampled establishment was randomly assigned one of these thirteen 2-week reporting periods in the first quarter. To avoid potential quarterly cycles, reporting periods in subsequent quarters were assigned so that an establishment did not report at the same time each quarter. In all, responses were obtained for 8 out of 52 weeks during 1993.

In the third stage of sampling, for each of the 2-week periods determined in the second stage, a reporting establishment selected a systematic sample of its shipments from its files. The questionnaire provided sampling instructions that typically resulted in a sample of between 20 and 50 shipments being selected each quarter.

SURVEY METHODOLOGY

The 1993 Commodity Flow Survey (CFS) is an establishment-based shipper survey that used mailout/ mailback data collection. Respondents were asked to select a sample of their outbound shipments and to report, for each sampled shipment, the major commodity, weight, value, transportation mode(s), origin, destination, and indicators of whether the shipment was an export, hazardous material, or containerized. For exports we also collected the mode of export and city and country of destination. For multicommodity shipments, the respondents were instructed to report the commodity that made up the greatest percentage of the shipment's weight.

Two report forms were used for the survey—the CFS-1000 (the primary questionnaire) and the CFS-2000, which was sent in the fourth quarter to a subsample of establishments. The CFS-2000 contained additional questions about the establishment's transportation equipment and access to shipping facilities. See appendix E for sample questionnaires.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C 20402. Stock No. 041-001-00314-2.

ESTIMATION

Estimates in this survey are derived from weighted shipment data and are then adjusted using several factors to account for nonresponse, undercoverage, and response errors. Selected establishments reported for a sample of their shipments. We weighted these shipments to represent the establishment's shipments for the year. Each establishment's data were then weighted by the inverse of the establishment's probability of being selected into the sample, which allows data from selected establishments to represent nonselected establishments. We also used results from the economic census of Mineral Industries, Manufactures, Wholesale, Retail, and Service to construct adjustment factors at the establishment level and at the SIC level. We adjusted individual establishments to the Census to correct for sampling error and nonsampling error in the selection of shipments within the establishment. We performed the SIC-level adjustment to correct for sampling error in the selection of establishments and to account for undercoverage and establishment nonresponse.

Appendix D.
Standard Transportation Commodity Classification Code Information

The commodities shown in this report are classified in accordance with the Standard Transportation Commodity Classification (STCC) system, published by the Association of American Railroads.[1]

[1]For additional information on the STCC system, contact: STCC Technical Committee, c/ o Committee Secretary, Association of American Railroads, 50 F Street, NW, Room 5603, Washington, DC 20001-1564. Telephone number 202-639-2332; fax number 202-639-2312.

We provided respondents with a listing of STCC codes and descriptions at the five-digit level to use in assigning a commodity code for each shipment. For shipments of more than one commodity, we instructed respondents to use the five-digit code for the **major** commodity, defined as the commodity of greatest total weight in the shipment.

For this report, we aggregated the STCC codes to the two-digit level.

The following provides a description of each STCC code presented in this report.

STCC code	Commodity description	STCC code	Commodity description
01	Farm products	30	Rubber or miscellaneous plastics products
08	Forest products	31	Leather or leather products
09	Fresh fish	32	Clay, concrete, glass, or stone products
		33	Primary metal products
10	Metallic ores	34	Fabricated metal products
11	Coal	35	Machinery, excluding electrical
13	Crude petroleum, natural gas or gasoline	36	Electrical machinery, equipment, or supplies
14	Nonmetallic ores, minerals, excluding fuels	37	Transportation equipment
19	Ordnance or accessories	38	Instruments, photographic goods, optical goods, watches, or clocks
20	Food and kindred products	39	Miscellaneous products of manufacturing
21	Tobacco products, excluding insecticides		
22	Textile mill products	40	Waste or scrap materials not identified by producing industry
23	Apparel or other finished textile products or knit apparel	41	Miscellaneous freight shipments
24	Lumber or wood products, excluding furniture	42	Containers, carriers or devices, shipping, returned empty
25	Furniture or fixtures		
26	Pulp, paper, or allied products	48	Waste hazardous materials or waste hazardous substances
27	Printed matter		
28	Chemicals or allied products		
29	Petroleum or coal products	--	Commodity unknown

Appendix E.
Sample Report Forms and Instructions

The sample report forms and instructions are shown on the following pages.

Note: The CFS-2000 was sent to a subsample of establishments to obtain additional information about the use of transportation equipment and facilities.