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1992

Census of Transportation, Communications, and Utilities

TC92-CF-23

1993 COMMODITY FLOW SURVEY

Michigan

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.

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1993 COMMODITY FLOW SURVEY

Michigan

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U.S. Department of Transportation
Federico Peña, Secretary
Mortimer L. Downey, Deputy Secretary

BUREAU OF TRANSPORTATION STATISTICS
T. R. Lakshmanan, Director
Rolf R. Schmitt, Associate Director for Analysis and Data Development

U.S. Department of Commerce
Michael Kantor, Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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ECONOMICS
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ADMINISTRATION

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Bryant Benton, Deputy Director

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Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

SERVICES DIVISION
Carole A. Ambler, Chief

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
Michigan

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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	**256 289**	**100.0**	**323 807**	**100.0**	**60 248**	**100.0**	**268**
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	14 224	5.6	539	.2	290	.5	448
Private truck	77 890	30.4	159 220	49.2	8 408	14.0	43
For-hire truck	119 060	46.5	90 514	28.0	20 528	34.1	387
Air	56	–	1	–	1	–	865
Rail	17 031	6.6	30 437	9.4	13 772	22.9	806
Inland water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	195	.1	21 958	6.8	6 570	10.9	294
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
MULTIPLE MODES							
Private truck and for-hire truck	203	.1	172	.1	40	.1	270
Truck and air	2 060	.8	(S)	–	(S)	(S)	(S)
Truck and rail	14 113	5.5	2 172	.7	2 830	4.7	1 324
Truck and water	39	–	2 968	–	(S)	(S)	(S)
Truck and pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	–	–	–	–	–	–	–
OTHER MODES							
Other and unknown modes	10 529	4.1	4 606	1.4	1 320	2.2	269

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	**60 248**	**100.0**	**268**
Parcel, U.S. Postal Service, or courier, total	290	.5	448
Truck, total	29 395	48.8	109
Air, total	125	.2	1 092
Rail, total	16 568	27.5	1 048
Inland water, total	(S)	(S)	(S)
Great Lakes, total	10 837	18.0	436
Deep sea water, total	(S)	–	(S)
Pipeline, total	(S)	(S)	(S)
Other and unknown modes, total	1 311	2.2	268

– 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	**256 289**	**100.0**	**323 807**	**100.0**	**60 248**	**100.0**
Less than 50 miles	87 195	34.0	186 445	57.6	4 700	7.8
50 to 99 miles	28 421	11.1	34 546	10.7	3 376	5.6
100 to 249 miles	48 674	19.0	47 841	14.8	10 051	16.7
250 to 499 miles	30 867	12.0	33 374	10.3	16 222	26.9
500 to 749 miles	25 144	9.8	11 463	3.5	10 125	16.8
750 to 999 miles	10 662	4.2	4 497	1.4	5 059	8.4
1,000 to 1,499 miles	11 622	4.5	3 028	.9	4 472	7.4
1,500 to 1,999 miles	11 064	4.3	2 316	.7	5 439	9.0
2,000 miles or more	2 638	1.0	297	.1	803	1.3
SINGLE MODES						
Parcel, U.S. Postal Service, or courier	**14 224**	**100.0**	**539**	**100.0**	**290**	**100.0**
Less than 50 miles	2 511	17.7	113	20.9	3	1.0
50 to 99 miles	1 330	9.4	53	9.8	5	1.7
100 to 249 miles	3 370	23.7	108	20.1	24	8.2
250 to 499 miles	2 395	16.8	92	17.0	45	15.6
500 to 749 miles	2 156	15.2	82	15.2	62	21.4
750 to 999 miles	578	4.1	24	4.4	25	8.7
1,000 to 1,499 miles	866	6.1	34	6.2	47	16.2
1,500 to 1,999 miles	778	5.5	29	5.3	63	21.9
2,000 miles or more	242	1.7	6	1.1	15	5.2
Private truck	**77 890**	**100.0**	**159 220**	**100.0**	**8 408**	**100.0**
Less than 50 miles	49 596	63.7	130 447	81.9	3 081	36.6
50 to 99 miles	12 331	15.8	15 903	10.0	1 388	16.5
100 to 249 miles	10 132	13.0	10 351	6.5	1 950	23.2
250 to 499 miles	2 205	2.8	1 328	.8	629	7.5
500 to 749 miles	1 540	2.0	585	.4	448	5.3
750 to 999 miles	555	.7	156	.1	163	1.9
1,000 to 1,499 miles	414	.5	298	.2	401	4.8
1,500 to 1,999 miles	(S)	(S)	131	.1	296	3.5
2,000 miles or more	(S)	(S)	(S)	–	(S)	(S)
For-hire truck	**119 060**	**100.0**	**90 514**	**100.0**	**20 528**	**100.0**
Less than 50 miles	26 658	22.4	40 491	44.7	1 093	5.3
50 to 99 miles	13 201	11.1	15 326	16.9	1 672	8.1
100 to 249 miles	30 639	25.7	17 935	19.8	3 854	18.8
250 to 499 miles	18 681	15.7	7 688	8.5	3 672	17.9
500 to 749 miles	13 721	11.5	4 528	5.0	3 363	16.4
750 to 999 miles	4 498	3.8	2 019	2.2	2 263	11.0
1,000 to 1,499 miles	6 275	5.3	1 291	1.4	1 834	8.9
1,500 to 1,999 miles	4 755	4.0	1 137	1.3	2 539	12.4
2,000 miles or more	632	.5	100	.1	241	1.2
Air	**56**	**100.0**	**1**	**100.0**	**1**	**100.0**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 miles	3	5.8	–	(S)	–	(S)
500 to 749 miles	(S)	(S)	–	(S)	–	(S)
750 to 999 miles	2	3.5	–	(S)	–	(S)
1,000 to 1,499 miles	(S)	(S)	–	(S)	–	(S)
1,500 to 1,999 miles	9	16.3	–	7.1	–	15.9
2,000 miles or more	–	.8	–	(S)	–	(S)
Rail	**17 031**	**100.0**	**30 437**	**100.0**	**13 772**	**100.0**
Less than 50 miles	1 546	9.1	(S)	(S)	(S)	(S)
50 to 99 miles	448	2.6	858	2.8	102	.7
100 to 249 miles	1 850	10.9	4 201	13.8	1 011	7.3
250 to 499 miles	4 544	26.7	7 607	25.0	4 041	29.3
500 to 749 miles	3 370	19.8	3 635	11.9	3 414	24.8
750 to 999 miles	2 631	15.5	1 751	5.8	1 993	14.5
1,000 to 1,499 miles	1 550	9.1	(S)	(S)	(S)	(S)
1,500 to 1,999 miles	810	4.8	369	1.2	919	6.7
2,000 miles or more	282	1.7	50	.2	137	1.0
Inland water	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
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	–	–	–	–	–	–
Great Lakes	**195**	**100.0**	**21 958**	**100.0**	**6 570**	**100.0**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 miles	82	41.9	11 667	53.1	2 429	37.0
250 to 499 miles	68	35.0	9 611	43.8	4 080	62.1
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]	**(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	(D)	(D)	(D)	(D)	(D)	(D)
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	**203**	**100.0**	**172**	**100.0**	**40**	**100.0**
Less than 50 miles	31	15.4	69	40.4	5	11.4
50 to 99 miles	(S)	(S)	34	19.6	4	9.4
100 to 249 miles	42	20.8	(S)	(S)	–	(S)
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)
750 to 999 miles	–	(S)	–	–	–	(S)
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	(S)	–	–	–	(S)
2,000 miles or more	–	–	–	–	–	–
Truck and air	**2 060**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	(S)	(S)	(S)	(S)	–	(S)
100 to 249 miles	479	23.2	(S)	(S)	(S)	(S)
250 to 499 miles	317	15.4	12	4.6	8	4.5
500 to 749 miles	465	22.6	14	5.4	12	6.6
750 to 999 miles	174	8.4	3	1.0	3	1.7
1,000 to 1,499 miles	271	13.1	7	2.7	10	5.6
1,500 to 1,999 miles	218	10.6	11	4.1	23	12.9
2,000 miles or more	33	1.6	4	1.4	10	5.5
Truck and rail	**14 113**	**100.0**	**2 172**	**100.0**	**2 830**	**100.0**
Less than 50 miles	41	.3	41	1.9	4	.1
50 to 99 miles	(S)	(S)	59	2.7	10	.4
100 to 249 miles	617	4.4	244	11.2	72	2.5
250 to 499 miles	1 870	13.3	369	17.0	226	8.0
500 to 749 miles	3 425	24.3	411	18.9	345	12.2
750 to 999 miles	2 154	15.3	236	10.9	293	10.4
1,000 to 1,499 miles	2 027	14.4	201	9.3	311	11.0
1,500 to 1,999 miles	2 900	20.5	(S)	(S)	(S)	(S)
2,000 miles or more	1 000	7.1	(S)	(S)	(S)	(S)
Truck and water	**39**	**100.0**	**2 968**	**100.0**	**(S)**	**(S)**
Less than 50 miles	–	(S)	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	3	8.2	551	18.6	138	5.6
250 to 499 miles	8	20.0	(S)	(S)	(S)	(S)
500 to 749 miles	(S)	(S)	(S)	(S)	(S)	(S)
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	–	(S)	–	–	–	–
1,500 to 1,999 miles	(S)	(S)	(S)	(S)	(S)	(S)
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	–	–	–	–	–	–
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	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	–	–	–	–	–	–
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	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Inland water and Great Lakes	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)

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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	**–**	**–**	**–**	**–**	**–**	**–**
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	–	–	–	–	–	–
OTHER MODES						
Other and unknown modes	**10 529**	**100.0**	**4 606**	**100.0**	**1 320**	**100.0**
Less than 50 miles	6 671	63.4	2 446	53.1	45	3.4
50 to 99 miles	588	5.6	354	7.7	30	2.3
100 to 249 miles	1 158	11.0	839	18.2	182	13.8
250 to 499 miles	544	5.2	285	6.2	136	10.3
500 to 749 miles	383	3.6	131	2.9	104	7.9
750 to 999 miles	71	.7	308	6.7	320	24.2
1,000 to 1,499 miles	205	1.9	102	2.2	142	10.7
1,500 to 1,999 miles	(S)	(S)	109	2.4	242	18.3
2,000 miles or more	237	2.2	34	.7	119	9.0

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	**256 289**	**100.0**	**323 807**	**100.0**	**60 248**	**100.0**	**268**
Less than 50 lb	15 915	6.2	609	.2	191	.3	306
50 to 99 lb	5 035	2.0	363	.1	79	.1	240
100 to 499 lb	16 771	6.5	2 273	.7	406	.7	186
500 to 749 lb	5 024	2.0	1 205	.4	186	.3	155
750 to 999 lb	3 628	1.4	1 091	.3	160	.3	144
1,000 to 9,999 lb	82 836	32.3	25 252	7.8	5 969	9.9	237
10,000 to 49,999 lb	96 815	37.8	102 068	31.5	19 776	32.8	184
50,000 to 99,999 lb	20 967	8.2	92 889	28.7	8 847	14.7	101
100,000 lb or more	9 299	3.6	98 059	30.3	24 634	40.9	137
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	**14 224**	**100.0**	**539**	**100.0**	**290**	**100.0**	**448**
Less than 50 lb	9 856	69.3	273	50.6	146	50.6	443
50 to 99 lb	1 766	12.4	88	16.4	46	16.1	521
100 to 499 lb	2 323	16.3	151	28.0	84	28.9	552
500 to 749 lb	189	1.3	18	3.4	8	2.8	431
750 to 999 lb	91	.6	9	1.7	5	1.6	596
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	**77 890**	**100.0**	**159 220**	**100.0**	**8 408**	**100.0**	**43**
Less than 50 lb	3 357	4.3	180	.1	7	.1	31
50 to 99 lb	1 872	2.4	202	.1	9	.1	47
100 to 499 lb	6 899	8.9	1 585	1.0	83	1.0	52
500 to 749 lb	2 285	2.9	902	.6	50	.6	57
750 to 999 lb	1 669	2.1	844	.5	47	.6	56
1,000 to 9,999 lb	22 360	28.7	15 180	9.5	947	11.3	61
10,000 to 49,999 lb	29 674	38.1	56 193	35.3	3 728	44.3	63
50,000 to 99,999 lb	8 652	11.1	59 528	37.4	2 692	32.0	45
100,000 lb or more	1 122	1.4	24 605	15.5	846	10.1	35
For-hire truck	**119 060**	**100.0**	**90 514**	**100.0**	**20 528**	**100.0**	**387**
Less than 50 lb	1 293	1.1	68	.1	16	.1	365
50 to 99 lb	1 012	.8	49	.1	15	.1	433
100 to 499 lb	6 537	5.5	461	.5	207	1.0	464
500 to 749 lb	2 332	2.0	252	.3	120	.6	466
750 to 999 lb	1 639	1.4	208	.2	104	.5	503
1,000 to 9,999 lb	38 745	32.5	7 225	8.0	2 890	14.1	445
10,000 to 49,999 lb	58 722	49.3	41 635	46.0	13 022	63.4	308
50,000 to 99,999 lb	7 138	6.0	28 947	32.0	3 128	15.2	111
100,000 lb or more	1 643	1.4	11 669	12.9	1 028	5.0	69
Air	**56**	**100.0**	**1**	**100.0**	**1**	**100.0**	**865**
Less than 50 lb	(S)	(S)	–	12.7	–	9.0	737
50 to 99 lb	(S)	(S)	–	8.9	–	(S)	(S)
100 to 499 lb	(S)	(S)	–	28.7	–	(S)	(S)
500 to 749 lb	(S)	(S)	–	6.1	–	(S)	(S)
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	(S)	(S)	–	43.6	–	(S)	(S)
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Rail	**17 031**	**100.0**	**30 437**	**100.0**	**13 772**	**100.0**	**806**
Less than 50 lb	(S)	(S)	–	–	–	–	551
50 to 99 lb	2	–	–	–	–	–	(S)
100 to 499 lb	(S)	(S)	(S)	(S)	(S)	–	(S)
500 to 749 lb	(S)	(S)	–	–	–	–	(S)
750 to 999 lb	–	–	–	–	–	–	(S)
1,000 to 9,999 lb	3 806	22.3	421	1.4	457	3.3	1 072
10,000 to 49,999 lb	3 151	18.5	1 610	5.3	1 112	8.1	666
50,000 to 99,999 lb	4 713	27.7	3 395	11.2	2 864	20.8	868
100,000 lb or more	5 346	31.4	25 009	82.2	9 337	67.8	503
Inland water	**(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	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	**195**	**100.0**	**21 958**	**100.0**	**6 570**	**100.0**	**294**
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	195	100.0	21 958	100.0	6 570	100.0	294
Deep sea water	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	–
100 to 499 lb	–	–	–	–	–	–	–
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	–	–	–	–	–	–	–

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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]	**(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	(D)	(D)	(D)	(D)	(D)	(D)	(D)
MULTIPLE MODES							
Private truck and for-hire truck	**203**	**100.0**	**172**	**100.0**	**40**	**100.0**	**270**
Less than 50 lb	(S)	(S)	–	.1	–	–	(S)
50 to 99 lb	(S)	(S)	–	.1	–	–	(S)
100 to 499 lb	16	8.0	4	2.2	(S)	(S)	(S)
500 to 749 lb	(S)	(S)	3	1.6	(S)	(S)	(S)
750 to 999 lb	(S)	(S)	(S)	(S)	–	–	(S)
1,000 to 9,999 lb	(S)	(S)	36	20.9	(S)	(S)	(S)
10,000 to 49,999 lb	53	25.9	70	40.9	19	48.4	299
50,000 to 99,999 lb	7	3.7	44	25.6	4	9.5	86
100,000 lb or more	–	.1	(S)	(S)	(S)	(S)	(S)
Truck and air	**2 060**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 lb	765	37.1	10	4.0	12	6.8	1 189
50 to 99 lb	224	10.9	6	2.4	8	4.3	1 199
100 to 499 lb	522	25.3	20	7.7	21	12.1	1 013
500 to 749 lb	68	3.3	3	1.3	4	2.3	1 282
750 to 999 lb	(S)	(S)	2	.7	2	.9	873
1,000 to 9,999 lb	(S)	(S)	(S)	(S)	12	6.7	553
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 rail	**14 113**	**100.0**	**2 172**	**100.0**	**2 830**	**100.0**	**1 324**
Less than 50 lb	–	–	–	–	–	–	(S)
50 to 99 lb	–	–	–	–	–	–	(S)
100 to 499 lb	7	.1	–	–	1	–	1 555
500 to 749 lb	(S)	(S)	–	–	–	–	1 149
750 to 999 lb	(S)	(S)	–	–	–	–	1 295
1,000 to 9,999 lb	12 115	85.8	1 081	49.8	1 454	51.4	1 316
10,000 to 49,999 lb	1 936	13.7	822	37.9	(S)	(S)	(S)
50,000 to 99,999 lb	29	.2	77	3.5	(S)	(S)	(S)
100,000 lb or more	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	**39**	**100.0**	**2 968**	**100.0**	**(S)**	**(S)**	**(S)**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	–	–	–	–	–	–	(S)
100 to 499 lb	–	.3	–	–	–	–	(S)
500 to 749 lb	–	.8	–	–	–	–	(S)
750 to 999 lb	–	.5	–	–	–	–	(S)
1,000 to 9,999 lb	(S)	(S)	–	–	(S)	–	(S)
10,000 to 49,999 lb	(S)	(S)	6	.2	(S)	–	(S)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	13	32.8	2 962	99.8	(S)	(S)	(S)
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	–	–	–	–	–	–	–
50,000 to 99,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100,000 lb or more	–	–	–	–	–	–	–
Rail and water	**(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	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	**(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	–	–	–	–	–	–	–

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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	
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	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	**–**	**–**	**–**	**–**	**–**	**–**	**–**
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	–	–	–	–	–	–	–
OTHER MODES							
Other and unknown modes	**10 529**	**100.0**	**4 606**	**100.0**	**1 320**	**100.0**	**269**
Less than 50 lb	610	5.8	(S)	(S)	(S)	–	(S)
50 to 99 lb	153	1.5	17	.4	1	.1	79
100 to 499 lb	442	4.2	50	1.1	8	.6	(S)
500 to 749 lb	135	1.3	25	.6	3	.2	(S)
750 to 999 lb	116	1.1	26	.6	3	.2	110
1,000 to 9,999 lb	5 331	50.6	1 285	27.9	193	14.7	182
10,000 to 49,999 lb	3 242	30.8	1 720	37.3	637	48.2	321
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.

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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	**256 289**	**323 807**	**60 248**	**268**
01	Farm products	2 843	9 141	4 714	107
08	Forest products	(S)	(S)	9	347
09	Fresh fish or other marine products	(S)	(S)	–	(S)
10	Metallic ores	(S)	(S)	3 058	(S)
11	Coal	–	–	–	–
13	Crude petroleum, natural gas, or gasoline	(S)	(S)	–	(S)
14	Nonmetallic minerals	463	80 850	11 197	32
19	Ordnance or accessories	153	8	4	1 024
20	Food or kindred products	34 748	26 072	5 051	75
21	Tobacco products, excluding insecticides	1 313	96	–	(S)
22	Textile mill products	352	93	14	550
23	Apparel or other finished textile products	2 212	111	32	640
24	Lumber or wood products, excluding furniture	2 974	11 979	2 423	156
25	Furniture or fixtures	5 238	989	736	623
26	Pulp, paper, or allied products	6 552	7 389	3 152	120
27	Printed matter	(S)	(S)	(S)	–
28	Chemicals or allied products	14 867	10 963	3 568	242
29	Petroleum or coal products	11 686	58 244	3 982	48
30	Rubber or miscellaneous plastics products	8 483	2 048	854	347
31	Leather or leather products	475	28	10	507
32	Clay, concrete, glass, or stone products	3 017	28 696	2 589	144
33	Primary metal products	14 241	20 702	3 391	174
34	Fabricated metal products	20 425	11 588	2 733	240
35	Machinery, excluding electrical	16 627	1 801	848	301
36	Electrical machinery, equipment, or supplies	6 490	481	193	326
37	Transportation equipment	84 208	15 610	8 441	581
38	Instruments, photographic goods, optical goods, watches, or clocks	3 376	172	57	337
39	Miscellaneous products of manufacturing	3 178	486	148	541
40	Waste or scrap materials	1 776	(S)	(S)	(S)
41	Miscellaneous freight shipments	(S)	(S)	(S)	(S)
42	Containers, carriers or devices, shipping, returned empty	249	159	28	136
48	Waste hazardous materials or waste hazardous substances	(S)	(S)	1	142
—	Commodity unknown	1 163	332	56	263

– 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.

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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	**256 289**	**100.0**	**323 807**	**100.0**	**60 248**	**100.0**	**268**
Single Modes							
Parcel, U.S. Postal Service, or courier	14 224	5.6	539	.2	290	.5	448
Private truck	77 890	30.4	159 220	49.2	8 408	14.0	43
For-hire truck	119 060	46.5	90 514	28.0	20 528	34.1	387
Air	56	–	1	–	1	–	865
Rail	17 031	6.6	30 437	9.4	13 772	22.9	806
Inland water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	195	.1	21 958	6.8	6 570	10.9	294
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Multiple Modes							
Private truck and for-hire truck	203	.1	172	.1	40	.1	270
Truck and air	2 060	.8	(S)	(S)	(S)	–	(S)
Truck and rail	14 113	5.5	2 172	.7	2 830	4.7	1 324
Truck and water	39	–	2 968	.9	(S)	(S)	(S)
Truck and pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	10 529	4.1	4 606	1.4	1 320	2.2	269
STCC 01, FARM PRODUCTS							
Total	**2 843**	**100.0**	**9 141**	**100.0**	**4 714**	**100.0**	**107**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	–	–	–	(S)
Private truck	1 215	42.7	2 022	22.1	151	3.2	81
For-hire truck	900	31.7	1 804	19.7	631	13.4	217
Air	–	–	–	–	–	–	–
Rail	562	19.8	5 147	56.3	3 867	82.0	727
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	–	–	–	–	–	–	–
Truck and rail	–	–	(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	144	5.1	151	1.7	(S)	(S)	(S)
STCC 08, FOREST PRODUCTS							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**9**	**100.0**	**347**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	(S)	(S)	5	63.0	213
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	–	(S)	–	(S)	–	–	(S)

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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)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	5	5.0	1	5.0	–	3.4	366
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
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	–	–	–	–	–	–	–
STCC 10, METALLIC ORES							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**3 058**	**100.0**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	(S)
Private truck	(S)	(S)	(S)	–	(S)	–	(S)
For-hire truck	(S)	(S)	(S)	–	–	–	(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	–	–	–	–	–	–	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 11, COAL							
Total	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	–	–	–	–	–	–	–
For-hire truck	–	–	–	–	–	–	–
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	–	–	–	–	–	–	–

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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	(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	–	–	–	–	–	–	–
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	**463**	**100.0**	**80 850**	**100.0**	**11 197**	**100.0**	**32**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	(S)
Private truck	225	48.6	41 494	51.3	1 108	9.9	25
For-hire truck	150	32.3	14 647	18.1	755	6.7	52
Air	–	–	–	–	–	–	–
Rail	6	1.3	927	1.1	166	1.5	(S)
Inland water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	62	13.4	19 124	23.7	5 773	51.6	301
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	(S)	–	(S)	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and water	11	2.3	2 912	3.6	(S)	(S)	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	71	.1	(S)	–	(S)
STCC 19, ORDNANCE OR ACCESSORIES							
Total	**153**	**100.0**	**8**	**100.0**	**4**	**100.0**	**1 024**
Single Modes							
Parcel, U.S. Postal Service, or courier	5	3.1	–	.3	–	.4	906
Private truck	(S)	(S)	(S)	(S)	–	(S)	(S)
For-hire truck	115	75.4	6	82.0	3	61.4	608
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
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	(S)	(S)	(S)	(S)	(S)	(S)	(S)

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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	**34 748**	**100.0**	**26 072**	**100.0**	**5 051**	**100.0**	**75**
Single Modes							
Parcel, U.S. Postal Service, or courier	23	.1	2	–	1	–	413
Private truck	23 584	67.9	18 455	70.8	1 448	28.7	48
For-hire truck	9 665	27.8	6 514	25.0	2 962	58.6	501
Air	–	–	–	–	–	–	–
Rail	522	1.5	657	2.5	481	9.5	794
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	33	.1	51	.2	(S)	–	(S)
Truck and air	(S)	–	–	–	–	–	(S)
Truck and rail	(S)	–	15	.1	(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	(S)	(S)	377	1.4	117	2.3	(S)
STCC 21, TOBACCO PRODUCTS, EXCLUDING INSECTICIDES							
Total	**1 313**	**100.0**	**96**	**100.0**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	–	(S)	–	–	(S)
Private truck	1 243	94.6	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(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	–	–	–	–	–	–	–
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 22, TEXTILE MILL PRODUCTS							
Total	**352**	**100.0**	**93**	**100.0**	**14**	**100.0**	**550**
Single Modes							
Parcel, U.S. Postal Service, or courier	73	20.8	4	4.7	3	17.8	754
Private truck	106	30.2	33	36.1	2	14.9	51
For-hire truck	156	44.4	53	57.1	9	61.9	322
Air	–	(S)	–	–	–	–	(S)
Rail	(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)
Truck and air	9	2.4	–	.4	–	3.1	1 629
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)

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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	**2 212**	**100.0**	**111**	**100.0**	**32**	**100.0**	**640**
Single Modes							
Parcel, U.S. Postal Service, or courier	360	16.3	12	10.5	5	16.3	692
Private truck	1 182	53.4	53	47.6	7	22.5	45
For-hire truck	570	25.8	44	39.9	19	58.7	621
Air	–	–	–	–	–	–	–
Rail	(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)	–	1.3	908
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 24, LUMBER OR WOOD PRODUCTS, EXCLUDING FURNITURE							
Total	**2 974**	**100.0**	**11 979**	**100.0**	**2 423**	**100.0**	**156**
Single Modes							
Parcel, U.S. Postal Service, or courier	20	.7	2	–	1	–	454
Private truck	1 911	64.3	7 667	64.0	612	25.3	68
For-hire truck	932	31.3	4 018	33.5	1 543	63.7	449
Air	–	–	–	–	–	–	(S)
Rail	65	2.2	244	2.0	222	9.2	1 058
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	(S)
Truck and air	–	–	–	–	–	–	(S)
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	27	.9	27	.2	10	.4	(S)
STCC 25, FURNITURE OR FIXTURES							
Total	**5 238**	**100.0**	**989**	**100.0**	**736**	**100.0**	**623**
Single Modes							
Parcel, U.S. Postal Service, or courier	50	.9	6	.6	5	.7	732
Private truck	1 777	33.9	276	27.9	110	15.0	161
For-hire truck	3 259	62.2	678	68.5	581	78.9	847
Air	–	–	–	–	–	–	(S)
Rail	50	1.0	13	1.3	20	2.8	1 588
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	–	–	–	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	–	(S)
Truck and rail	–	–	–	–	–	–	(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	84	1.6	14	1.4	17	2.4	650

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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	**6 552**	**100.0**	**7 389**	**100.0**	**3 152**	**100.0**	**120**
Single Modes							
Parcel, U.S. Postal Service, or courier	297	4.5	47	.6	17	.6	209
Private truck	2 202	33.6	2 188	29.6	165	5.2	29
For-hire truck	2 896	44.2	3 247	43.9	1 462	46.4	190
Air	–	–	–	–	–	–	–
Rail	896	13.7	1 553	21.0	1 320	41.9	872
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	4	.1	–	–	1	–	1 099
Truck and rail	66	1.0	212	2.9	86	2.7	337
Truck and water	(S)	–	(S)	–	(S)	–	(S)
Truck and pipeline[2]	–	–	–	–	–	–	–
Rail and water	(S)	(S)	(S)	(S)	(S)	–	(S)
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	171	2.6	123	1.7	93	2.9	(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	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
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	**14 867**	**100.0**	**10 963**	**100.0**	**3 568**	**100.0**	**242**
Single Modes							
Parcel, U.S. Postal Service, or courier	653	4.4	31	.3	14	.4	477
Private truck	3 478	23.4	5 259	48.0	506	14.2	46
For-hire truck	9 312	62.6	4 304	39.3	1 653	46.3	446
Air	–	–	–	–	–	–	(S)
Rail	359	2.4	893	8.1	575	16.1	738
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Multiple Modes							
Private truck and for-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and air	58	.4	(S)	–	(S)	–	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(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)	147	1.3	(S)	(S)	(S)

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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	**11 686**	**100.0**	**58 244**	**100.0**	**3 982**	**100.0**	**48**
Single Modes							
Parcel, U.S. Postal Service, or courier	21	.2	4	–	1	–	322
Private truck	8 973	76.8	44 399	76.2	1 969	49.4	31
For-hire truck	1 353	11.6	6 129	10.5	387	9.7	(S)
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	54	.5	621	1.1	74	1.9	155
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	657	5.6	3 715	6.4	(S)	(S)	(S)
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	(S)
Truck and air	–	–	–	–	–	–	(S)
Truck and rail	(S)	(S)	(S)	(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	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 30, RUBBER OR MISCELLANEOUS PLASTICS PRODUCTS							
Total	**8 483**	**100.0**	**2 048**	**100.0**	**854**	**100.0**	**347**
Single Modes							
Parcel, U.S. Postal Service, or courier	549	6.5	34	1.7	19	2.2	585
Private truck	1 743	20.5	524	25.6	67	7.9	68
For-hire truck	5 848	68.9	1 405	68.6	699	81.8	469
Air	–	–	–	–	–	–	(S)
Rail	148	1.7	(S)	(S)	43	5.0	1 100
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	26	.3	(S)	(S)	(S)	(S)	(S)
Truck and rail	(S)	(S)	5	.2	(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	147	1.7	20	1.0	10	1.2	(S)
STCC 31, LEATHER OR LEATHER PRODUCTS							
Total	**475**	**100.0**	**28**	**100.0**	**10**	**100.0**	**507**
Single Modes							
Parcel, U.S. Postal Service, or courier	63	13.3	(S)	(S)	(S)	(S)	(S)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	314	66.0	15	52.7	6	60.0	790
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	(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)

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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	**3 017**	**100.0**	**28 696**	**100.0**	**2 589**	**100.0**	**144**
Single Modes							
Parcel, U.S. Postal Service, or courier	235	7.8	10	–	3	.1	366
Private truck	1 262	41.8	19 773	68.9	546	21.1	32
For-hire truck	1 346	44.6	5 490	19.1	837	32.3	284
Air	–	–	–	–	–	–	–
Rail	43	1.4	664	2.3	155	6.0	(S)
Inland water	(S)	(S)	(S)	(S)	(S)	–	(S)
Great Lakes	79	2.6	2 214	7.7	723	27.9	336
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	(S)	–	–	–	(S)
Truck and air	(S)	(S)	–	–	–	–	1 685
Truck and rail	(S)	–	(S)	–	(S)	–	(S)
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	45	1.5	436	1.5	306	11.8	(S)
STCC 33, PRIMARY METAL PRODUCTS							
Total	**14 241**	**100.0**	**20 702**	**100.0**	**3 391**	**100.0**	**174**
Single Modes							
Parcel, U.S. Postal Service, or courier	249	1.7	15	.1	7	.2	412
Private truck	3 763	26.4	4 991	24.1	518	15.3	56
For-hire truck	9 312	65.4	13 913	67.2	2 349	69.2	261
Air	–	–	–	–	–	–	(S)
Rail	229	1.6	624	3.0	342	10.1	540
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	76	.5	1	–	1	–	1 025
Truck and rail	(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)	(S)	(S)	(S)	(S)	(S)
STCC 34, FABRICATED METAL PRODUCTS							
Total	**20 425**	**100.0**	**11 588**	**100.0**	**2 733**	**100.0**	**240**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 371	6.7	56	.5	24	.9	389
Private truck	5 932	29.0	3 745	32.3	270	9.9	48
For-hire truck	11 056	54.1	6 411	55.3	1 600	58.5	382
Air	(S)	–	–	–	–	–	(S)
Rail	1 439	7.0	1 119	9.7	730	26.7	605
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	29	.3	(S)	–	(S)
Truck and air	104	.5	6	.1	7	.3	1 170
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	422	2.1	189	1.6	69	2.5	67

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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 35, MACHINERY, EXCLUDING ELECTRICAL							
Total	**16 627**	**100.0**	**1 801**	**100.0**	**848**	**100.0**	**301**
Single Modes							
Parcel, U.S. Postal Service, or courier	2 987	18.0	59	3.3	27	3.1	369
Private truck	4 883	29.4	705	39.2	(S)	(S)	(S)
For-hire truck	7 675	46.2	974	54.1	493	58.1	520
Air	(S)	–	–	–	–	–	(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)
Truck and air	430	2.6	5	.3	5	.5	1 045
Truck and rail	37	.2	8	.4	(S)	(S)	(S)
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	541	3.3	37	2.1	15	1.8	89
STCC 36, ELECTRICAL MACHINERY, EQUIPMENT, OR SUPPLIES							
Total	**6 490**	**100.0**	**481**	**100.0**	**193**	**100.0**	**326**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 859	28.6	44	9.1	23	11.9	473
Private truck	1 465	22.6	193	40.0	30	15.4	32
For-hire truck	2 386	36.8	196	40.7	91	47.1	339
Air	(S)	(S)	–	(S)	–	–	(S)
Rail	84	1.3	23	4.9	31	16.0	1 116
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)	1	.6	948
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	235	3.6	9	1.9	4	2.1	154
STCC 37, TRANSPORTATION EQUIPMENT							
Total	**84 208**	**100.0**	**15 610**	**100.0**	**8 441**	**100.0**	**581**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 610	1.9	70	.4	49	.6	786
Private truck	5 709	6.8	1 675	10.7	175	2.1	34
For-hire truck	45 982	54.6	7 678	49.2	2 751	32.6	438
Air	(S)	–	–	–	–	–	1 080
Rail	11 455	13.6	3 892	24.9	3 366	39.9	985
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	–	–	–	–	(S)
Truck and air	709	.8	39	.2	33	.4	1 217
Truck and rail	12 880	15.3	1 314	8.4	1 751	20.7	1 326
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	5 827	6.9	941	6.0	316	3.7	579

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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 38, INSTRUMENTS, PHOTOGRAPHIC GOODS, OPTICAL GOODS, WATCHES, OR CLOCKS							
Total	**3 376**	**100.0**	**172**	**100.0**	**57**	**100.0**	**337**
Single Modes							
Parcel, U.S. Postal Service, or courier	1 583	46.9	25	14.4	12	21.4	357
Private truck	832	24.7	(S)	(S)	12	21.4	69
For-hire truck	545	16.1	36	20.9	27	46.6	408
Air	(S)	(S)	–	–	–	–	(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	–	–	–	–	–	–	–
Truck and air	(S)	(S)	2	.9	2	2.9	1 104
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	140	4.2	4	2.2	2	3.7	(S)
STCC 39, MISCELLANEOUS PRODUCTS OF MANUFACTURING							
Total	**3 178**	**100.0**	**486**	**100.0**	**148**	**100.0**	**541**
Single Modes							
Parcel, U.S. Postal Service, or courier	889	28.0	24	5.0	17	11.6	649
Private truck	1 122	35.3	246	50.6	(S)	(S)	(S)
For-hire truck	1 047	32.9	205	42.3	86	58.3	585
Air	–	–	–	–	–	–	(S)
Rail	–	–	–	–	–	–	(S)
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	36	1.1	1	.2	1	.8	1 143
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	79	2.5	7	1.5	2	1.3	149
STCC 40, WASTE OR SCRAP MATERIALS							
Total	**1 776**	**100.0**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	(S)
Private truck	223	12.6	1 489	9.2	73	3.3	49
For-hire truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	228	12.8	(S)	(S)	925	42.1	318
Inland water	–	–	–	–	–	–	–
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)
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	9	.5	98	.6	(S)	(S)	(S)

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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	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	93	2.6	(S)	(S)	(S)	(S)	(S)
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	62	2.1	29	9.3	447
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline[2]	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(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)
STCC 42, CONTAINERS, CARRIERS OR DEVICES, SHIPPING, RETURNED EMPTY							
Total	**249**	**100.0**	**159**	**100.0**	**28**	**100.0**	**136**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	(S)
Private truck	19	7.5	12	7.3	–	1.2	(S)
For-hire truck	215	86.1	133	83.6	23	80.5	138
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	–	–	–	–	–	–	–
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)
STCC 48, WASTE HAZARDOUS MATERIALS OR WASTE HAZARDOUS SUBSTANCES							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**1**	**100.0**	**142**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	(S)
Private truck	2	35.6	2	14.7	1	87.3	146
For-hire truck	(S)	(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	–	–	–	–	–	–	–
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)

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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	**1 163**	**100.0**	**332**	**100.0**	**56**	**100.0**	**263**
Single Modes							
Parcel, U.S. Postal Service, or courier	65	5.6	2	.7	(S)	(S)	(S)
Private truck	(S)	(S)	107	32.2	8	13.6	36
For-hire truck	333	28.7	68	20.4	(S)	(S)	(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	6	.5	–	(S)	–	.3	1 457
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)

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.

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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	**256 289**	**100.0**	**323 807**	**100.0**	**60 248**	**100.0**
NEW ENGLAND STATES						
Connecticut	1 049	.4	291	.1	253	.4
Maine	258	.1	(S)	(S)	(S)	(S)
Massachusetts	1 648	.6	353	.1	323	.5
New Hampshire	370	.1	66	–	59	.1
Rhode Island	204	.1	(S)	–	(S)	–
Vermont	(S)	(S)	87	–	72	.1
MIDDLE ATLANTIC STATES						
New Jersey	3 997	1.6	1 076	.3	760	1.3
New York	6 483	2.5	2 100	.6	1 170	1.9
Pennsylvania	4 661	1.8	3 338	1.0	2 016	3.3
EAST NORTH CENTRAL STATES						
Illinois	13 154	5.1	9 188	2.8	3 732	6.2
Indiana	9 950	3.9	9 140	2.8	2 312	3.8
Michigan	122 712	47.9	239 272	73.9	14 442	24.0
Ohio	20 735	8.1	26 873	8.3	5 597	9.3
Wisconsin	4 199	1.6	4 404	1.4	1 562	2.6
WEST NORTH CENTRAL STATES						
Iowa	1 159	.5	581	.2	318	.5
Kansas	1 850	.7	426	.1	360	.6
Minnesota	2 247	.9	3 320	1.0	1 850	3.1
Missouri	4 542	1.8	1 573	.5	1 012	1.7
Nebraska	587	.2	216	.1	163	.3
North Dakota	281	.1	80	–	80	.1
South Dakota	105	–	37	–	32	.1
SOUTH ATLANTIC STATES						
Delaware	1 711	.7	448	.1	294	.5
District of Columbia	44	–	6	–	4	–
Florida	4 690	1.8	792	.2	1 023	1.7
Georgia	4 383	1.7	1 502	.5	1 322	2.2
Maryland	1 591	.6	2 109	.7	1 501	2.5
North Carolina	2 332	.9	1 857	.6	1 711	2.8
South Carolina	1 044	.4	317	.1	252	.4
Virginia	2 198	.9	1 142	.4	(S)	(S)
West Virginia	424	.2	330	.1	131	.2
EAST SOUTH CENTRAL STATES						
Alabama	795	.3	217	.1	180	.3
Kentucky	4 073	1.6	2 736	.8	(S)	(S)
Mississippi	697	.3	266	.1	245	.4
Tennessee	2 267	.9	923	.3	577	1.0
WEST SOUTH CENTRAL STATES						
Arkansas	854	.3	396	.1	360	.6
Louisiana	1 189	.5	397	.1	452	.8
Oklahoma	1 913	.7	1 179	.4	1 279	2.1
Texas	8 715	3.4	3 034	.9	4 286	7.1
MOUNTAIN STATES						
Arizona	1 113	.4	196	.1	406	.7
Colorado	(S)	(S)	272	.1	350	.6
Idaho	(S)	(S)	(S)	–	(S)	–
Montana	123	–	18	–	30	–
Nevada	(S)	(S)	(S)	–	(S)	–
New Mexico	321	.1	37	–	59	.1
Utah	468	.2	81	–	137	.2
Wyoming	(S)	–	6	–	9	–
PACIFIC STATES						
Alaska	26	–	3	–	6	–
California	9 135	3.6	1 795	.6	4 359	7.2
Hawaii	183	.1	20	–	87	.1
Oregon	631	.2	194	.1	459	.8
Washington	1 189	.5	241	.1	566	.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.

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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	**4.7**	**–**	**7.2**	**–**	**5.9**	**–**	**5.6**
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	6.7	.6	5.0	–	5.7	–	11.0
Private truck	6.3	1.6	12.0	3.5	8.6	1.5	5.8
For-hire truck	5.2	1.6	11.6	2.1	3.3	1.6	4.3
Air	42.2	–	41.9	–	37.5	–	14.6
Rail	15.9	.8	37.7	3.0	14.3	2.6	5.6
Inland water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	19.6	–	22.2	1.9	20.8	2.4	4.6
Deep sea water	–	–	–	–	–	–	–
Pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
MULTIPLE MODES							
Private truck and for-hire truck	46.0	–	15.8	–	28.5	–	19.4
Truck and air	13.4	.1	(S)	.1	(S)	(S)	(S)
Truck and rail	30.7	1.5	26.1	.2	32.3	1.5	4.9
Truck and water	41.6	–	42.9	.4	(S)	(S)	(S)
Truck and pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	–	–	–	–	–	–	–
OTHER MODES							
Other and unknown modes	14.6	.7	18.8	.3	10.1	.3	29.5

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	**5.9**	**–**	**5.6**
Parcel, U.S. Postal Service, or courier, total	5.7	–	11.0
Truck, total	3.1	2.5	7.2
Air, total	43.9	.1	7.1
Rail, total	14.7	3.3	4.8
Inland water, total	(S)	(S)	(S)
Great Lakes, total	20.0	2.9	15.0
Deep sea water, total	(S)	–	(S)
Pipeline, total	(S)	(S)	(S)
Other and unknown modes, total	10.1	.3	29.6

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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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	**4.7**	**–**	**7.2**	**–**	**5.9**	**–**
Less than 50 miles	6.7	2.2	10.1	2.5	13.5	1.1
50 to 99 miles	7.7	.8	19.2	1.2	22.7	1.0
100 to 249 miles	8.1	1.1	4.6	1.3	4.6	.9
250 to 499 miles	6.6	.6	8.4	1.3	8.8	1.6
500 to 749 miles	7.0	.6	14.3	.6	18.7	2.2
750 to 999 miles	14.8	.5	10.7	.1	11.6	.7
1,000 to 1,499 miles	18.6	.6	21.7	.2	23.4	1.4
1,500 to 1,999 miles	10.2	.4	13.1	.1	14.0	1.3
2,000 miles or more	21.4	.2	19.3	–	20.8	.3
SINGLE MODES						
Parcel, U.S. Postal Service, or courier	**6.7**	**–**	**5.0**	**–**	**5.7**	**–**
Less than 50 miles	7.1	1.2	13.3	2.1	11.0	.1
50 to 99 miles	8.8	.6	9.1	.7	10.0	.2
100 to 249 miles	9.0	1.2	5.9	1.1	5.3	.6
250 to 499 miles	8.7	.8	7.4	.8	7.1	.7
500 to 749 miles	8.0	.6	5.3	.9	5.2	.7
750 to 999 miles	11.2	.3	8.6	.4	8.5	.4
1,000 to 1,499 miles	15.5	.8	12.8	.7	13.4	1.6
1,500 to 1,999 miles	14.0	.5	9.5	.4	9.1	1.4
2,000 miles or more	38.5	.5	18.0	.2	17.4	.8
Private truck	**6.3**	**–**	**12.0**	**–**	**8.6**	**–**
Less than 50 miles	7.9	2.5	12.4	1.4	16.2	3.2
50 to 99 miles	12.1	1.4	20.3	1.0	18.5	1.5
100 to 249 miles	8.8	.9	9.8	.7	9.2	2.0
250 to 499 miles	10.2	.3	9.4	.1	10.3	.9
500 to 749 miles	14.2	.4	11.7	.1	12.1	.7
750 to 999 miles	41.5	.3	24.9	–	24.5	.5
1,000 to 1,499 miles	17.2	.1	38.2	.1	37.3	2.1
1,500 to 1,999 miles	(S)	(S)	43.1	.1	42.8	1.6
2,000 miles or more	(S)	(S)	(S)	–	(S)	(S)
For-hire truck	**5.2**	**–**	**11.6**	**–**	**3.3**	**–**
Less than 50 miles	5.3	1.5	13.6	2.0	12.6	.5
50 to 99 miles	5.8	.8	34.5	2.4	41.5	2.6
100 to 249 miles	10.3	1.6	5.5	1.5	5.3	1.1
250 to 499 miles	8.7	.9	5.6	1.0	5.7	1.2
500 to 749 miles	7.2	.7	3.5	.5	3.6	.8
750 to 999 miles	14.1	.4	26.1	.7	28.9	2.9
1,000 to 1,499 miles	17.3	.8	9.9	.3	10.4	1.1
1,500 to 1,999 miles	11.4	.4	5.5	.1	5.6	.8
2,000 miles or more	21.7	.1	17.8	–	17.9	.2
Air	**42.2**	**–**	**41.9**	**–**	**37.5**	**–**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	100.0	–	100.0	–	100.0	–
100 to 249 miles	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 miles	41.7	3.9	52.1	(S)	56.9	(S)
500 to 749 miles	(S)	(S)	59.5	(S)	56.6	(S)
750 to 999 miles	36.1	5.3	53.0	(S)	51.6	(S)
1,000 to 1,499 miles	(S)	(S)	84.6	(S)	83.5	(S)
1,500 to 1,999 miles	46.6	8.6	42.8	4.2	45.3	8.9
2,000 miles or more	49.1	1.6	58.6	(S)	58.9	(S)
Rail	**15.9**	**–**	**37.7**	**–**	**14.3**	**–**
Less than 50 miles	32.0	1.9	(S)	(S)	(S)	(S)
50 to 99 miles	46.7	1.4	44.4	1.6	34.0	.2
100 to 249 miles	20.9	1.6	26.9	2.7	22.6	1.0
250 to 499 miles	13.0	4.9	19.4	5.6	17.2	4.0
500 to 749 miles	23.2	3.5	21.5	4.9	22.5	5.5
750 to 999 miles	29.8	2.7	29.9	1.8	29.1	3.2
1,000 to 1,499 miles	48.2	2.2	(S)	(S)	(S)	(S)
1,500 to 1,999 miles	23.8	.9	9.7	.5	10.2	1.5
2,000 miles or more	33.7	.5	37.0	.1	37.2	.4
Inland water	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
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	–	–	–	–	–	–
Great Lakes	**19.6**	**–**	**22.2**	**–**	**20.8**	**–**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 miles	37.5	9.9	27.4	7.3	27.7	5.9
250 to 499 miles	28.9	8.0	22.6	4.9	21.9	5.5
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	–	–	–	–	–	–

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TSF:TIPS92-15332171.DAT;1 5/ 7/ 96 15:33:31 UTF:TIPS93-15332171.DAT;1 5/ 7/ 96 15:33:31 META:TIPS96-15332171.DAT;1 5/ 7/ 96 15:34:14

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	**(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	(D)	(D)	(D)	(D)	(D)	(D)
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	**46.0**	**–**	**15.8**	**–**	**28.5**	**–**
Less than 50 miles	21.6	9.4	29.8	9.8	42.6	9.7
50 to 99 miles	(S)	(S)	30.9	8.3	32.1	6.0
100 to 249 miles	30.1	6.3	(S)	(S)	55.3	(S)
250 to 499 miles	(D)	(D)	(D)	(D)	(D)	(D)
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)
750 to 999 miles	80.2	(S)	67.1	–	67.7	(S)
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	95.5	(S)	77.2	–	77.1	(S)
2,000 miles or more	–	–	–	–	–	–
Truck and air	**13.4**	**–**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	(S)	(S)	(S)	(S)	54.3	(S)
100 to 249 miles	41.7	7.7	(S)	(S)	(S)	(S)
250 to 499 miles	30.2	2.8	30.1	5.8	29.6	3.2
500 to 749 miles	19.4	4.7	19.6	5.7	18.9	3.7
750 to 999 miles	39.1	3.6	16.1	2.0	14.4	2.0
1,000 to 1,499 miles	24.9	1.8	27.0	3.4	25.9	3.6
1,500 to 1,999 miles	16.3	1.9	33.8	3.6	33.5	6.5
2,000 miles or more	30.2	.5	41.6	3.1	40.5	5.6
Truck and rail	**30.7**	**–**	**26.1**	**–**	**32.3**	**–**
Less than 50 miles	26.2	.4	32.0	1.0	33.3	.1
50 to 99 miles	(S)	(S)	41.2	.8	42.3	.1
100 to 249 miles	45.0	1.0	33.2	2.2	34.6	.6
250 to 499 miles	42.0	2.6	36.1	5.5	33.6	4.1
500 to 749 miles	31.0	3.6	36.2	3.6	36.9	2.6
750 to 999 miles	35.2	4.5	30.4	4.5	31.4	4.3
1,000 to 1,499 miles	37.3	2.7	31.9	2.0	32.2	2.9
1,500 to 1,999 miles	39.1	4.0	(S)	(S)	(S)	(S)
2,000 miles or more	49.4	2.8	(S)	(S)	(S)	(S)
Truck and water	**41.6**	**–**	**42.9**	**–**	**(S)**	**(S)**
Less than 50 miles	100.0	(S)	100.0	9.1	100.0	1.7
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	42.5	13.6	46.0	15.5	46.1	16.0
250 to 499 miles	44.9	6.4	(S)	(S)	(S)	(S)
500 to 749 miles	(S)	(S)	(S)	(S)	(S)	(S)
750 to 999 miles	–	–	–	–	–	–
1,000 to 1,499 miles	69.7	(S)	67.5	1.5	66.7	8.7
1,500 to 1,999 miles	(S)	(S)	(S)	(S)	(S)	(S)
2,000 miles or more	99.8	(S)	99.9	–	99.9	.1
Truck and pipeline	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
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	–	–	–	–	–	–
Rail and water	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 miles	–	–	–	–	–	–
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	–	–	–	–	–	–
1,000 to 1,499 miles	–	–	–	–	–	–
1,500 to 1,999 miles	–	–	–	–	–	–
2,000 miles or more	–	–	–	–	–	–
Inland water and Great Lakes	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**	**(D)**
Less than 50 miles	–	–	–	–	–	–
50 to 99 miles	–	–	–	–	–	–
100 to 249 miles	–	–	–	–	–	–
250 to 499 miles	–	–	–	–	–	–
500 to 749 miles	(D)	(D)	(D)	(D)	(D)	(D)

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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
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	**–**	**–**	**–**	**–**	**–**	**–**
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	–	–	–	–	–	–
OTHER MODES						
Other and unknown modes	**14.6**	**–**	**18.8**	**–**	**10.1**	**–**
Less than 50 miles	20.6	5.2	23.5	4.9	27.8	.7
50 to 99 miles	25.7	1.9	26.8	1.5	26.0	.5
100 to 249 miles	15.6	2.1	36.0	3.0	37.2	4.7
250 to 499 miles	19.4	1.6	30.0	1.8	30.8	3.6
500 to 749 miles	24.3	.7	29.3	.9	26.4	2.2
750 to 999 miles	35.8	.2	45.1	4.3	44.9	8.4
1,000 to 1,499 miles	21.6	.3	16.7	1.1	14.4	3.2
1,500 to 1,999 miles	(S)	(S)	32.9	2.4	32.6	6.9
2,000 miles or more	28.9	1.2	33.7	.3	32.4	2.4

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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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	**4.7**	**–**	**7.2**	**–**	**5.9**	**–**	**5.6**
Less than 50 lb	5.7	.6	7.6	–	8.3	–	7.8
50 to 99 lb	5.6	.1	4.0	–	6.1	–	5.4
100 to 499 lb	4.1	.3	3.7	.1	5.0	.1	6.2
500 to 749 lb	4.3	.1	3.3	–	3.0	–	3.4
750 to 999 lb	7.8	.1	3.8	–	7.9	–	8.7
1,000 to 9,999 lb	10.1	2.0	8.1	.9	13.6	1.2	11.1
10,000 to 49,999 lb	6.5	2.3	7.3	1.7	5.8	2.7	6.0
50,000 to 99,999 lb	17.1	1.2	17.0	2.8	22.4	2.5	10.9
100,000 lb or more	6.9	.2	11.8	3.2	13.4	3.4	14.9
SINGLE MODES							
Parcel, U.S. Postal Service, or courier	**6.7**	**–**	**5.0**	**–**	**5.7**	**–**	**11.0**
Less than 50 lb	7.5	1.7	6.3	2.0	7.9	2.7	11.7
50 to 99 lb	5.8	1.0	4.6	.8	5.2	.8	4.4
100 to 499 lb	13.4	1.5	9.9	1.9	9.4	2.2	6.3
500 to 749 lb	20.9	.3	14.7	.4	16.1	.4	22.6
750 to 999 lb	42.1	.3	31.4	.5	42.1	.6	18.2
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	**6.3**	**–**	**12.0**	**–**	**8.6**	**–**	**5.8**
Less than 50 lb	10.8	.6	7.2	–	6.0	–	12.1
50 to 99 lb	8.3	.3	7.7	–	5.8	–	3.7
100 to 499 lb	4.9	.7	5.5	.1	6.7	.1	4.2
500 to 749 lb	3.3	.2	4.0	.1	7.0	.1	7.1
750 to 999 lb	7.0	.3	5.3	.1	6.5	.1	8.0
1,000 to 9,999 lb	7.6	1.6	7.6	1.2	6.5	.9	5.3
10,000 to 49,999 lb	11.6	2.7	7.1	2.8	7.3	2.6	5.7
50,000 to 99,999 lb	24.4	2.1	19.5	3.2	17.8	3.1	17.6
100,000 lb or more	21.5	.3	32.7	2.8	28.7	1.8	9.4
For-hire truck	**5.2**	**–**	**11.6**	**–**	**3.3**	**–**	**4.3**
Less than 50 lb	18.3	.2	20.1	–	20.8	–	10.6
50 to 99 lb	18.9	.1	14.1	–	12.6	–	8.7
100 to 499 lb	11.5	.5	8.7	.1	9.8	.1	6.5
500 to 749 lb	8.8	.1	5.3	–	6.0	–	4.2
750 to 999 lb	11.4	.1	5.7	–	10.5	.1	6.1
1,000 to 9,999 lb	8.9	1.8	7.2	.8	6.6	1.1	5.5
10,000 to 49,999 lb	6.1	2.5	11.4	1.9	3.8	2.7	6.7
50,000 to 99,999 lb	11.2	.7	20.2	2.2	25.1	3.1	18.3
100,000 lb or more	12.2	.1	11.0	1.6	11.1	.6	10.6
Air	**42.2**	**–**	**41.9**	**–**	**37.5**	**–**	**14.6**
Less than 50 lb	(S)	(S)	34.1	11.0	29.9	8.4	13.8
50 to 99 lb	(S)	(S)	62.3	3.9	52.3	(S)	(S)
100 to 499 lb	(S)	(S)	72.1	11.6	64.6	(S)	(S)
500 to 749 lb	(S)	(S)	59.0	8.4	62.5	(S)	(S)
750 to 999 lb	–	–	–	–	–	–	–
1,000 to 9,999 lb	(S)	(S)	57.0	13.3	51.7	(S)	(S)
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
Rail	**15.9**	**–**	**37.7**	**–**	**14.3**	**–**	**5.6**
Less than 50 lb	(S)	(S)	75.4	–	47.8	–	44.6
50 to 99 lb	49.9	–	64.0	–	83.5	–	(S)
100 to 499 lb	(S)	(S)	(S)	(S)	(S)	–	(S)
500 to 749 lb	(S)	(S)	50.9	–	61.1	–	(S)
750 to 999 lb	100.0	–	100.0	–	100.0	–	(S)
1,000 to 9,999 lb	41.9	5.9	42.7	.7	45.1	1.2	16.7
10,000 to 49,999 lb	16.7	4.4	29.0	2.0	33.0	2.9	18.6
50,000 to 99,999 lb	27.2	3.8	32.1	2.1	46.5	5.0	9.8
100,000 lb or more	11.9	5.6	43.2	3.9	13.7	5.6	9.0
Inland water	**(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	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	**19.6**	**–**	**22.2**	**–**	**20.8**	**–**	**4.6**
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	19.6	–	22.2	–	20.8	–	4.6
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 15:38:13 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_26 PAGE: 1
TSF:TIPS92-15372643.DAT;1 5/ 7/ 96 15:37:32 UTF:TIPS93-15372643.DAT;1 5/ 7/ 96 15:37:33 META:TIPS96-15372643.DAT;1 5/ 7/ 96 15:38:03

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	**(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	(D)	(D)	(D)	(D)	(D)	(D)	(D)
MULTIPLE MODES							
Private truck and for-hire truck	**46.0**	**–**	**15.8**	**–**	**28.5**	**–**	**19.4**
Less than 50 lb	(S)	(S)	61.5	.3	66.5	.3	(S)
50 to 99 lb	(S)	(S)	75.6	.5	75.6	.4	(S)
100 to 499 lb	46.2	4.0	43.6	2.8	(S)	(S)	(S)
500 to 749 lb	(S)	(S)	47.5	2.7	(S)	(S)	(S)
750 to 999 lb	(S)	(S)	(S)	(S)	62.5	.7	(S)
1,000 to 9,999 lb	(S)	(S)	48.0	6.7	(S)	(S)	(S)
10,000 to 49,999 lb	34.6	10.6	32.5	11.9	46.7	11.8	26.3
50,000 to 99,999 lb	41.4	6.7	41.2	9.4	40.1	10.6	25.7
100,000 lb or more	69.2	.2	(S)	(S)	(S)	(S)	(S)
Truck and air	**13.4**	**–**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Less than 50 lb	24.0	5.1	16.3	6.1	17.3	5.8	6.6
50 to 99 lb	29.3	1.6	27.7	4.0	37.7	4.5	13.1
100 to 499 lb	16.6	5.2	31.7	7.9	38.5	6.9	6.7
500 to 749 lb	23.2	1.0	21.5	2.2	33.4	2.3	11.3
750 to 999 lb	(S)	(S)	27.1	1.7	24.8	1.2	13.2
1,000 to 9,999 lb	(S)	(S)	(S)	(S)	23.7	3.8	40.7
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 rail	**30.7**	**–**	**26.1**	**–**	**32.3**	**–**	**4.9**
Less than 50 lb	55.0	–	39.7	–	50.6	–	(S)
50 to 99 lb	79.0	–	67.6	–	59.0	–	(S)
100 to 499 lb	42.7	.1	42.9	–	33.0	–	21.6
500 to 749 lb	(S)	(S)	45.9	–	36.1	–	28.9
750 to 999 lb	(S)	(S)	50.8	–	45.9	–	28.8
1,000 to 9,999 lb	34.5	13.2	36.9	9.0	36.4	10.5	8.9
10,000 to 49,999 lb	43.0	13.2	38.3	8.4	(S)	(S)	(S)
50,000 to 99,999 lb	44.3	.1	45.0	1.0	(S)	(S)	(S)
100,000 lb or more	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	**41.6**	**–**	**42.9**	**–**	**(S)**	**(S)**	**(S)**
Less than 50 lb	–	–	–	–	–	–	–
50 to 99 lb	100.0	.4	100.0	–	100.0	–	(S)
100 to 499 lb	87.0	3.7	95.0	9.1	80.3	1.8	(S)
500 to 749 lb	85.6	1.7	78.5	.6	86.7	3.3	(S)
750 to 999 lb	71.6	5.0	66.8	.9	68.2	5.4	(S)
1,000 to 9,999 lb	(S)	(S)	52.6	10.5	(S)	10.5	(S)
10,000 to 49,999 lb	(S)	(S)	42.2	.3	(S)	4.6	(S)
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	37.5	13.7	43.0	18.2	(S)	(S)	(S)
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	–	–	–	–	–	–	–
50,000 to 99,999 lb	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100,000 lb or more	–	–	–	–	–	–	–
Rail and water	**(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	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	**(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	–	–	–	–	–	–	–

TIPS UPF [DMD_PSYS,R_HEMMIG] 5/ 7/96 15:38:13 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_26 PAGE: 2
TSF:TIPS92-15372643.DAT;1 5/ 7/96 15:37:32 UTF:TIPS93-15372643.DAT;1 5/ 7/96 15:37:33 META:TIPS96-15372643.DAT;1 5/ 7/96 15:38:03

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	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	**–**	**–**	**–**	**–**	**–**	**–**	**–**
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	–	–	–	–	–	–	–
OTHER MODES							
Other and unknown modes	**14.6**	**–**	**18.8**	**–**	**10.1**	**–**	**29.5**
Less than 50 lb	15.8	1.6	(S)	(S)	(S)	.3	(S)
50 to 99 lb	12.6	.4	12.4	.1	10.8	–	14.9
100 to 499 lb	21.0	.8	23.4	.3	31.9	.1	(S)
500 to 749 lb	31.7	.3	32.5	.2	20.7	–	(S)
750 to 999 lb	23.1	.3	27.3	.3	23.1	.1	44.3
1,000 to 9,999 lb	24.9	7.2	37.8	6.0	21.0	2.8	41.3
10,000 to 49,999 lb	22.1	5.9	17.8	3.4	10.6	5.5	24.6
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 15:38:13 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_26 PAGE: 3
TSF:TIPS92-15372643.DAT;1 5/ 7/96 15:37:32 UTF:TIPS93-15372643.DAT;1 5/ 7/96 15:37:33 META:TIPS96-15372643.DAT;1 5/ 7/96 15:38:03

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	**4.7**	**7.2**	**5.9**	**5.6**
01	Farm products	16.1	15.9	20.1	10.8
08	Forest products	(S)	(S)	38.1	24.1
09	Fresh fish or other marine products	(S)	(S)	94.6	(S)
10	Metallic ores	(S)	(S)	43.9	(S)
11	Coal	–	–	–	–
13	Crude petroleum, natural gas, or gasoline	(S)	(S)	69.9	(S)
14	Nonmetallic minerals	17.7	19.5	21.6	6.0
19	Ordnance or accessories	33.5	22.4	41.0	15.2
20	Food or kindred products	11.2	7.0	5.1	10.1
21	Tobacco products, excluding insecticides	40.8	50.0	59.2	(S)
22	Textile mill products	20.6	23.5	25.5	12.1
23	Apparel or other finished textile products	21.0	26.3	15.8	12.8
24	Lumber or wood products, excluding furniture	9.6	11.8	29.0	9.3
25	Furniture or fixtures	14.1	10.3	12.0	4.0
26	Pulp, paper, or allied products	3.3	7.5	6.8	34.6
27	Printed matter	(S)	(S)	(S)	–
28	Chemicals or allied products	11.7	19.4	23.4	12.5
29	Petroleum or coal products	25.2	29.5	27.3	5.5
30	Rubber or miscellaneous plastics products	12.8	12.9	19.1	7.7
31	Leather or leather products	24.0	19.4	22.4	15.8
32	Clay, concrete, glass, or stone products	10.9	11.5	16.6	13.8
33	Primary metal products	8.8	11.9	10.1	8.5
34	Fabricated metal products	6.3	12.4	15.2	5.2
35	Machinery, excluding electrical	8.7	19.4	22.3	11.1
36	Electrical machinery, equipment, or supplies	9.4	12.5	17.9	12.7
37	Transportation equipment	10.9	17.3	22.7	10.6
38	Instruments, photographic goods, optical goods, watches, or clocks	15.8	29.3	15.6	12.1
39	Miscellaneous products of manufacturing	9.4	20.4	15.7	11.3
40	Waste or scrap materials	45.8	(S)	(S)	(S)
41	Miscellaneous freight shipments	(S)	(S)	(S)	(S)
42	Containers, carriers or devices, shipping, returned empty	43.2	37.5	41.0	22.7
48	Waste hazardous materials or waste hazardous substances	(S)	(S)	48.5	34.0
—	Commodity unknown	30.2	34.6	46.8	25.2

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 15:44:05 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_26 PAGE: 1
TSF:TIPS92-15432700.DAT;1 5/ 7/ 96 15:43:31 UTF:TIPS93-15432700.DAT;1 5/ 7/ 96 15:43:32 META:TIPS96-15432700.DAT;1 5/ 7/ 96 15:44:00

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	**4.7**	**–**	**7.2**	**–**	**5.9**	**–**	**5.6**
Single Modes							
Parcel, U.S. Postal Service, or courier	6.7	.6	5.0	–	5.7	–	11.0
Private truck	6.3	1.6	12.0	3.5	8.6	1.5	5.8
For-hire truck	5.2	1.6	11.6	2.1	3.3	1.6	4.3
Air	42.2	–	41.9	–	37.5	–	14.6
Rail	15.9	.8	37.7	3.0	14.3	2.6	5.6
Inland water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	19.6	–	22.2	1.9	20.8	2.4	4.6
Deep sea water	–	–	–	–	–	–	–
Pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Multiple Modes							
Private truck and for-hire truck	46.0	–	15.8	–	28.5	–	19.4
Truck and air	13.4	.1	(S)	(S)	(S)	.2	(S)
Truck and rail	30.7	1.5	26.1	.2	32.3	1.5	4.9
Truck and water	41.6	–	42.9	.4	(S)	(S)	(S)
Truck and pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rail and water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	14.6	.7	18.8	.3	10.1	.3	29.5
STCC 01, FARM PRODUCTS							
Total	**16.1**	**–**	**15.9**	**–**	**20.1**	**–**	**10.8**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	(S)	–	89.8	–	(S)
Private truck	20.0	6.8	22.4	6.0	12.1	2.8	7.2
For-hire truck	48.1	7.0	24.2	4.6	22.3	7.8	41.0
Air	–	–	–	–	–	–	–
Rail	25.3	5.7	25.6	8.8	24.9	10.6	15.8
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	(S)	(S)	(S)	–	(S)
Truck and air	–	–	–	–	–	–	–
Truck and rail	100.0	–	(S)	–	100.0	–	(S)
Truck and water	100.0	–	(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	49.3	2.0	42.1	.7	(S)	(S)	(S)
STCC 08, FOREST PRODUCTS							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**38.1**	**–**	**24.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	(S)	(S)	47.0	16.1	29.4
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	99.4	(S)	67.1	(S)	98.1	.4	(S)

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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	66.8	(S)	68.7	10.5	69.1	10.6	(S)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	46.8	12.9	45.4	13.4	35.3	18.1	27.5
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and air	100.0	–	100.0	–	100.0	.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	–	–	–	–	–	–	–
STCC 10, METALLIC ORES							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**43.9**	**–**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	89.7	–	81.3	–	74.5	–	(S)
Private truck	(S)	(S)	(S)	14.3	(S)	14.3	(S)
For-hire truck	(S)	(S)	(S)	10.6	77.3	10.6	(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	100.0	–	100.0	–	100.0	–	(S)
Truck and rail	–	–	–	–	–	–	–
Truck and water	–	–	–	–	–	–	–
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	–	–	–	–	–	–	–
STCC 11, COAL							
Total	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Single Modes							
Parcel, U.S. Postal Service, or courier	–	–	–	–	–	–	–
Private truck	–	–	–	–	–	–	–
For-hire truck	–	–	–	–	–	–	–
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 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	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	(S)	(S)	100.0	.8	(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 14, NONMETALLIC MINERALS							
Total	**17.7**	**–**	**19.5**	**–**	**21.6**	**–**	**6.0**
Single Modes							
Parcel, U.S. Postal Service, or courier	61.6	–	76.2	–	71.5	–	(S)
Private truck	32.4	5.9	33.5	7.1	39.2	3.6	5.3
For-hire truck	19.5	5.2	13.5	2.9	11.7	2.3	9.0
Air	–	–	–	–	–	–	–
Rail	27.3	.4	34.6	.6	40.9	2.0	(S)
Inland water	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Great Lakes	23.3	4.5	24.3	6.1	22.7	8.4	6.5
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	100.0	.1	(S)	.1	(S)	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	.9	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	.6	(S)
Truck and water	45.7	1.1	44.1	1.7	(S)	(S)	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	(S)	(S)	44.9	.1	(S)	–	(S)
STCC 19, ORDNANCE OR ACCESSORIES							
Total	**33.5**	**–**	**22.4**	**–**	**41.0**	**–**	**15.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	45.4	1.7	38.6	.4	40.7	.8	14.4
Private truck	(S)	(S)	(S)	(S)	56.1	(S)	(S)
For-hire truck	44.0	9.1	22.7	8.5	28.8	11.2	14.4
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	91.3	(S)	95.0	.8	(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)

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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 20, FOOD OR KINDRED PRODUCTS							
Total	**11.2**	**–**	**7.0**	**–**	**5.1**	**–**	**10.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	35.1	–	35.0	–	31.8	–	28.1
Private truck	14.1	2.9	9.2	2.5	11.3	3.0	4.2
For-hire truck	9.6	2.9	9.8	2.3	9.3	3.2	9.0
Air	–	–	–	–	–	–	–
Rail	29.4	.5	13.7	.5	19.6	2.3	17.1
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	49.9	–	48.7	.1	(S)	.2	(S)
Truck and air	(S)	–	54.4	–	50.6	–	(S)
Truck and rail	(S)	–	45.5	–	(S)	.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	(S)	(S)	40.0	.6	31.9	.7	(S)
STCC 21, TOBACCO PRODUCTS, EXCLUDING INSECTICIDES							
Total	**40.8**	**–**	**50.0**	**–**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	(S)	(S)	100.0	(S)	100.0	.7	(S)
Private truck	42.7	13.3	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	(S)	(S)	67.6	(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 22, TEXTILE MILL PRODUCTS							
Total	**20.6**	**–**	**23.5**	**–**	**25.5**	**–**	**12.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	20.0	5.5	20.5	2.4	32.2	4.3	11.3
Private truck	24.2	3.5	31.7	5.2	38.0	4.2	11.1
For-hire truck	32.0	6.3	28.8	7.3	31.9	5.7	41.9
Air	85.9	(S)	79.3	–	83.7	.6	(S)
Rail	(S)	(S)	100.0	–	100.0	.2	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	74.5	1.8	(S)
Truck and air	28.6	.8	30.7	1.0	29.7	2.1	10.1
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)	52.0	(S)	61.2	(S)	(S)

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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 23, APPAREL OR OTHER FINISHED TEXTILE PRODUCTS							
Total	**21.0**	**–**	**26.3**	**–**	**15.8**	**–**	**12.8**
Single Modes							
Parcel, U.S. Postal Service, or courier	48.5	5.6	42.6	3.2	34.4	4.3	11.5
Private truck	38.9	11.3	46.4	9.1	43.3	6.4	32.7
For-hire truck	16.9	9.2	17.1	8.0	15.7	7.4	10.3
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	100.0	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	(S)	52.1	(S)	48.4	2.4	10.1
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)	52.4	.1	(S)
STCC 24, LUMBER OR WOOD PRODUCTS, EXCLUDING FURNITURE							
Total	**9.6**	**–**	**11.8**	**–**	**29.0**	**–**	**9.3**
Single Modes							
Parcel, U.S. Postal Service, or courier	27.6	.3	23.9	–	19.3	–	11.8
Private truck	11.4	2.9	10.4	3.0	12.6	3.6	8.0
For-hire truck	13.3	2.6	17.4	2.9	43.8	5.5	12.1
Air	100.0	–	100.0	–	100.0	–	(S)
Rail	18.8	.6	25.6	.4	26.4	2.1	17.5
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	55.2	–	73.5	–	93.2	–	(S)
Truck and air	52.6	–	51.2	–	59.5	–	(S)
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	31.0	.3	37.6	.1	45.4	.3	(S)
STCC 25, FURNITURE OR FIXTURES							
Total	**14.1**	**–**	**10.3**	**–**	**12.0**	**–**	**4.0**
Single Modes							
Parcel, U.S. Postal Service, or courier	13.4	.2	11.6	.1	12.2	.2	4.7
Private truck	29.9	5.1	15.2	2.4	17.9	2.2	10.6
For-hire truck	13.8	4.9	10.8	2.5	14.9	4.2	3.1
Air	70.8	–	80.3	–	77.2	–	(S)
Rail	38.5	.4	30.0	.5	37.3	1.3	20.0
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	79.6	–	80.4	–	(S)
Truck and air	(S)	(S)	(S)	(S)	(S)	.2	(S)
Truck and rail	96.8	–	78.2	–	90.4	–	(S)
Truck and water	100.0	–	100.0	–	(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	29.1	.8	27.2	.5	48.0	2.3	34.2

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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 26, PULP, PAPER, OR ALLIED PRODUCTS							
Total	**3.3**	**–**	**7.5**	**–**	**6.8**	**–**	**34.6**
Single Modes							
Parcel, U.S. Postal Service, or courier	23.1	.9	26.3	.2	31.0	.2	41.9
Private truck	7.9	2.1	13.7	2.6	17.5	.8	16.6
For-hire truck	5.9	2.5	11.0	3.0	6.8	2.5	32.3
Air	–	–	–	–	–	–	–
Rail	7.1	1.1	6.9	1.5	10.7	2.4	6.0
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	(S)	.1	(S)
Truck and air	40.4	–	45.7	–	43.2	–	27.5
Truck and rail	41.1	.4	41.1	1.3	41.8	1.5	25.9
Truck and water	(S)	–	(S)	–	(S)	.1	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	(S)	(S)	(S)	(S)	(S)	.2	(S)
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	27.0	.7	25.0	.4	29.2	.7	(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	49.1	–	60.5	–	47.7	–	–
Rail	100.0	–	100.0	–	100.0	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	100.0	–	100.0	–	100.0	–	–
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	**11.7**	**–**	**19.4**	**–**	**23.4**	**–**	**12.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	28.4	1.2	19.6	.1	20.5	.1	13.8
Private truck	16.4	3.3	28.1	5.0	20.3	3.5	5.5
For-hire truck	17.5	6.2	13.9	4.8	19.1	7.7	9.8
Air	100.0	–	100.0	–	100.0	–	(S)
Rail	26.5	1.2	24.6	2.7	26.4	4.6	8.7
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Multiple Modes							
Private truck and for-hire truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Truck and air	29.3	.2	(S)	–	(S)	.2	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	–	(S)	–	(S)	.1	(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)	38.4	.6	(S)	(S)	(S)

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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 29, PETROLEUM OR COAL PRODUCTS							
Total	**25.2**	**–**	**29.5**	**–**	**27.3**	**–**	**5.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	30.3	.1	30.8	–	30.0	.1	19.2
Private truck	29.2	5.3	34.3	6.1	35.4	10.7	7.7
For-hire truck	38.3	2.4	45.5	2.8	47.2	2.0	(S)
Air	–	–	–	–	–	–	–
Rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	48.7	.3	43.6	.7	49.4	1.5	28.4
Deep sea water	–	–	–	–	–	–	–
Pipeline	42.0	4.5	41.9	5.3	(S)	(S)	(S)
Multiple Modes							
Private truck and for-hire truck	95.7	–	92.7	–	93.8	–	(S)
Truck and air	68.3	–	77.3	–	70.4	–	(S)
Truck and rail	(S)	(S)	(S)	(S)	(S)	.2	(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	(D)	(D)	(D)	(D)	(D)	(D)	(D)
STCC 30, RUBBER OR MISCELLANEOUS PLASTICS PRODUCTS							
Total	**12.8**	**–**	**12.9**	**–**	**19.1**	**–**	**7.7**
Single Modes							
Parcel, U.S. Postal Service, or courier	13.4	1.5	23.3	.5	24.9	.8	9.4
Private truck	9.7	2.5	9.1	2.7	19.8	2.1	22.9
For-hire truck	18.3	4.0	17.0	3.2	22.9	2.7	5.7
Air	88.7	–	94.8	–	93.9	–	(S)
Rail	47.2	.9	(S)	(S)	43.7	2.0	26.5
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	82.3	–	(S)
Truck and air	24.3	.1	(S)	(S)	(S)	(S)	(S)
Truck and rail	(S)	(S)	49.6	.1	(S)	.5	(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	20.7	.4	18.6	.3	37.5	1.0	(S)
STCC 31, LEATHER OR LEATHER PRODUCTS							
Total	**24.0**	**–**	**19.4**	**–**	**22.4**	**–**	**15.8**
Single Modes							
Parcel, U.S. Postal Service, or courier	38.8	8.5	(S)	(S)	(S)	(S)	(S)
Private truck	(D)	(D)	(D)	(D)	(D)	(D)	(D)
For-hire truck	36.5	12.5	21.3	12.8	22.2	12.0	13.8
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	96.7	(S)	93.7	–	96.8	.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	(D)	(D)	(D)	(D)	(D)	(D)	(D)

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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 32, CLAY, CONCRETE, GLASS, OR STONE PRODUCTS							
Total	**10.9**	**–**	**11.5**	**–**	**16.6**	**–**	**13.8**
Single Modes							
Parcel, U.S. Postal Service, or courier	46.2	3.0	30.5	–	27.7	.1	23.3
Private truck	7.9	2.1	10.4	3.1	6.7	5.9	10.9
For-hire truck	18.0	3.9	29.3	3.6	12.7	5.1	15.7
Air	–	–	–	–	–	–	–
Rail	22.3	.3	35.9	.8	22.8	1.6	(S)
Inland water	(S)	(S)	(S)	(S)	(S)	–	(S)
Great Lakes	45.9	1.8	41.3	3.0	42.5	8.6	23.8
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	57.6	–	(S)	–	75.3	–	(S)
Truck and air	(S)	(S)	48.9	–	49.0	–	22.2
Truck and rail	(S)	–	(S)	–	(S)	–	(S)
Truck and water	(S)	(S)	(S)	(S)	(S)	.3	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	29.6	.5	30.7	.4	43.8	3.5	(S)
STCC 33, PRIMARY METAL PRODUCTS							
Total	**8.8**	**–**	**11.9**	**–**	**10.1**	**–**	**8.5**
Single Modes							
Parcel, U.S. Postal Service, or courier	15.7	.5	23.6	–	23.9	–	16.9
Private truck	10.0	2.1	11.3	2.1	13.0	1.8	14.3
For-hire truck	10.9	3.5	11.2	2.6	9.9	3.5	7.2
Air	57.8	–	61.9	–	68.9	–	(S)
Rail	24.1	.4	39.9	1.1	39.5	3.5	14.1
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	(S)	.1	(S)
Truck and air	27.9	.2	19.4	–	31.1	–	8.8
Truck and rail	(S)	(S)	(S)	(S)	(S)	.2	(S)
Truck and water	66.9	–	80.4	–	(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)	(S)	(S)	(S)
STCC 34, FABRICATED METAL PRODUCTS							
Total	**6.3**	**–**	**12.4**	**–**	**15.2**	**–**	**5.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	13.0	1.0	17.3	.2	16.8	.2	7.7
Private truck	13.6	2.7	15.2	3.7	14.7	1.6	8.8
For-hire truck	8.4	4.3	15.2	3.6	9.4	4.5	5.7
Air	(S)	–	73.2	–	57.9	–	(S)
Rail	34.7	1.9	40.7	2.4	47.1	5.3	21.8
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	45.4	.2	(S)	.2	(S)
Truck and air	42.5	.3	32.2	–	37.4	.2	4.1
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	93.2	–	99.3	–	99.9	–	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	28.5	.5	33.8	.5	32.3	.9	33.2

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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 35, MACHINERY, EXCLUDING ELECTRICAL							
Total	**8.7**	**–**	**19.4**	**–**	**22.3**	**–**	**11.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	8.9	1.1	12.9	.4	20.5	.8	9.5
Private truck	22.7	4.2	25.0	5.6	(S)	(S)	(S)
For-hire truck	16.2	4.7	22.9	5.4	22.1	7.5	11.7
Air	(S)	–	83.7	–	60.6	–	(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)	.1	96.4	–	(S)
Truck and air	25.8	.9	22.5	.1	13.2	.2	5.6
Truck and rail	40.3	.1	41.2	.2	(S)	(S)	(S)
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	10.5	.5	17.2	.8	38.1	1.8	37.8
STCC 36, ELECTRICAL MACHINERY, EQUIPMENT, OR SUPPLIES							
Total	**9.4**	**–**	**12.5**	**–**	**17.9**	**–**	**12.7**
Single Modes							
Parcel, U.S. Postal Service, or courier	16.0	4.2	24.2	2.1	25.9	3.3	9.9
Private truck	13.4	2.2	22.5	3.8	30.4	3.0	12.4
For-hire truck	23.0	5.3	14.4	5.2	21.9	5.7	23.7
Air	(S)	(S)	87.9	(S)	95.5	.1	(S)
Rail	40.7	.4	30.5	1.3	38.3	3.8	22.1
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)	(S)	(S)	34.8	.3	7.5
Truck and rail	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Truck and water	(S)	–	100.0	–	100.0	.1	(S)
Truck and pipeline	–	–	–	–	–	–	–
Rail and water	–	–	–	–	–	–	–
Inland water and Great Lakes	–	–	–	–	–	–	–
Inland water and deep sea	–	–	–	–	–	–	–
Other Modes							
Other and unknown modes	31.6	1.0	26.6	.3	39.5	.5	39.2
STCC 37, TRANSPORTATION EQUIPMENT							
Total	**10.9**	**–**	**17.3**	**–**	**22.7**	**–**	**10.6**
Single Modes							
Parcel, U.S. Postal Service, or courier	17.4	.6	19.1	.2	20.3	.3	6.0
Private truck	18.6	1.0	41.5	1.9	20.3	.5	19.7
For-hire truck	10.2	2.9	8.9	4.3	9.4	5.9	8.7
Air	(S)	–	42.6	–	28.8	–	20.2
Rail	22.3	1.8	36.6	3.9	44.5	6.9	10.9
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	–	82.2	–	72.9	–	(S)
Truck and air	25.2	.2	33.1	.1	33.5	.1	8.3
Truck and rail	32.0	3.8	31.6	2.7	30.9	4.0	6.3
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	16.7	1.9	25.0	1.9	34.9	1.3	24.2

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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 38, INSTRUMENTS, PHOTOGRAPHIC GOODS, OPTICAL GOODS, WATCHES, OR CLOCKS							
Total	**15.8**	**–**	**29.3**	**–**	**15.6**	**–**	**12.1**
Single Modes							
Parcel, U.S. Postal Service, or courier	27.6	6.6	15.3	4.0	18.0	5.4	14.9
Private truck	38.9	6.3	(S)	(S)	42.3	5.7	14.4
For-hire truck	12.7	4.0	17.6	6.1	24.3	6.8	21.7
Air	(S)	(S)	75.5	–	71.1	–	(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	–	–	–	–	–	–	–
Truck and air	(S)	(S)	27.5	.3	29.6	.9	8.0
Truck and rail	(S)	(S)	100.0	(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	26.9	1.1	32.6	1.0	34.7	1.3	(S)
STCC 39, MISCELLANEOUS PRODUCTS OF MANUFACTURING							
Total	**9.4**	**–**	**20.4**	**–**	**15.7**	**–**	**11.3**
Single Modes							
Parcel, U.S. Postal Service, or courier	11.6	3.9	18.4	1.4	23.8	2.9	10.9
Private truck	19.8	3.6	23.1	4.4	(S)	(S)	(S)
For-hire truck	15.0	3.0	23.7	4.3	13.7	6.5	7.0
Air	57.5	–	66.8	–	83.1	–	(S)
Rail	75.7	–	84.1	–	100.0	–	(S)
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	(S)	(S)	(S)	(S)	74.1	.1	(S)
Truck and air	25.3	.3	34.3	.1	45.4	.6	11.0
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	33.8	1.2	28.5	1.1	33.0	.6	37.6
STCC 40, WASTE OR SCRAP MATERIALS							
Total	**45.8**	**–**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	54.0	–	47.5	–	83.5	–	(S)
Private truck	16.0	8.3	20.0	8.4	12.0	3.4	10.7
For-hire truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
Air	–	–	–	–	–	–	–
Rail	39.7	2.7	(S)	(S)	42.0	7.0	16.3
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	–	–	–	–	–	–	–
Truck and rail	(S)	(S)	(S)	.1	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	40.9	.6	45.1	.8	(S)	(S)	(S)

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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 41, MISCELLANEOUS FREIGHT SHIPMENTS							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**	**(S)**
Single Modes							
Parcel, U.S. Postal Service, or courier	42.2	9.2	(S)	(S)	(S)	(S)	(S)
Private truck	(S)	(S)	(S)	(S)	(S)	(S)	(S)
For-hire truck	(S)	(S)	47.3	16.5	39.4	18.6	27.8
Air	–	–	–	–	–	–	–
Rail	–	–	–	–	–	–	–
Inland water	–	–	–	–	–	–	–
Great Lakes	–	–	–	–	–	–	–
Deep sea water	–	–	–	–	–	–	–
Pipeline	–	–	–	–	–	–	–
Multiple Modes							
Private truck and for-hire truck	–	–	–	–	–	–	–
Truck and air	(S)	.3	80.4	.1	91.3	1.1	(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)	62.1	1.2	98.8	.2	(S)
STCC 42, CONTAINERS, CARRIERS OR DEVICES, SHIPPING, RETURNED EMPTY							
Total	**43.2**	**–**	**37.5**	**–**	**41.0**	**–**	**22.7**
Single Modes							
Parcel, U.S. Postal Service, or courier	100.0	–	100.0	–	100.0	–	(S)
Private truck	47.9	9.6	43.8	9.6	34.8	8.5	(S)
For-hire truck	41.7	9.1	34.1	9.2	31.2	8.8	29.8
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	–	–	–	–	–	–	–
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	100.0	–	100.0	–	100.0	–	(S)
STCC 48, WASTE HAZARDOUS MATERIALS OR WASTE HAZARDOUS SUBSTANCES							
Total	**(S)**	**(S)**	**(S)**	**(S)**	**48.5**	**–**	**34.0**
Single Modes							
Parcel, U.S. Postal Service, or courier	100.0	.5	100.0	–	100.0	.6	(S)
Private truck	35.4	16.6	40.4	19.2	45.8	18.6	35.8
For-hire truck	(S)	(S)	(S)	(S)	96.0	(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	61.5	(S)	(S)	(S)	54.3	(S)	(S)

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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	
COMMODITY UNKNOWN							
Total	**30.2**	**–**	**34.6**	**–**	**46.8**	**–**	**25.2**
Single Modes							
Parcel, U.S. Postal Service, or courier	37.3	3.6	37.2	.8	(S)	(S)	(S)
Private truck	(S)	(S)	29.3	10.6	35.4	8.7	21.1
For-hire truck	26.8	10.1	28.1	9.5	(S)	(S)	(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	49.7	.5	54.3	(S)	49.6	.4	23.4
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)

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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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	**4.7**	**–**	**7.2**	**–**	**5.9**	**–**
NEW ENGLAND STATES						
Connecticut	22.4	.1	32.2	–	33.8	.1
Maine	28.0	–	(S)	(S)	(S)	(S)
Massachusetts	20.4	.1	15.4	–	15.1	.1
New Hampshire	25.5	–	22.2	–	21.3	–
Rhode Island	46.2	–	(S)	–	(S)	–
Vermont	(S)	(S)	35.6	–	38.1	–
MIDDLE ATLANTIC STATES						
New Jersey	13.9	.2	10.9	–	10.6	.1
New York	9.4	.2	11.4	.1	11.3	.2
Pennsylvania	10.1	.2	13.2	.1	18.1	.6
EAST NORTH CENTRAL STATES						
Illinois	15.3	.6	14.7	.5	22.8	1.0
Indiana	12.0	.4	23.1	.6	28.8	1.1
Michigan	5.6	2.6	8.8	2.1	12.4	2.7
Ohio	7.9	.6	24.3	1.4	17.8	1.4
Wisconsin	8.5	.1	12.4	.2	15.1	.4
WEST NORTH CENTRAL STATES						
Iowa	13.4	–	11.3	–	10.9	.1
Kansas	21.6	.2	23.6	–	26.6	.2
Minnesota	15.6	.1	17.3	.2	17.5	.4
Missouri	6.9	.1	8.1	.1	8.0	.2
Nebraska	21.6	–	14.1	–	14.7	.1
North Dakota	39.7	–	28.7	–	29.7	–
South Dakota	24.2	–	28.2	–	27.6	–
SOUTH ATLANTIC STATES						
Delaware	15.6	.1	16.4	–	16.2	.1
District of Columbia	22.9	–	38.5	–	41.2	–
Florida	24.5	.4	20.0	–	20.3	.4
Georgia	17.0	.3	14.8	.1	15.8	.4
Maryland	14.8	.1	31.9	.2	33.1	.8
North Carolina	12.7	.1	26.3	.2	29.1	.8
South Carolina	12.2	–	14.3	–	13.6	.1
Virginia	11.3	.1	43.8	.2	(S)	(S)
West Virginia	32.9	.1	28.3	–	27.2	.1
EAST SOUTH CENTRAL STATES						
Alabama	14.2	–	10.6	–	11.1	–
Kentucky	12.7	.2	27.0	.2	(S)	(S)
Mississippi	28.4	.1	26.7	–	28.9	.1
Tennessee	15.0	.1	10.6	–	11.4	.1
WEST SOUTH CENTRAL STATES						
Arkansas	30.8	.1	36.9	.1	38.1	.3
Louisiana	23.2	.1	22.4	–	22.2	.2
Oklahoma	21.5	.1	37.7	.1	38.3	.8
Texas	14.8	.4	23.8	.2	25.9	1.5
MOUNTAIN STATES						
Arizona	18.7	.1	15.8	–	16.3	.1
Colorado	(S)	(S)	12.1	–	12.5	.1
Idaho	(S)	(S)	(S)	–	(S)	–
Montana	41.0	–	43.9	–	48.4	–
Nevada	(S)	(S)	(S)	–	(S)	.3
New Mexico	25.4	–	25.4	–	26.3	–
Utah	20.6	–	21.4	–	22.5	.1
Wyoming	(S)	–	41.2	–	41.4	–
PACIFIC STATES						
Alaska	24.6	–	36.0	–	35.8	–
California	12.8	.4	18.8	.1	19.5	1.4
Hawaii	35.2	–	37.0	–	36.8	.1
Oregon	21.8	.1	10.8	–	11.0	.1
Washington	16.8	.1	7.5	–	8.0	.1

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.

OMB No. 0607-0753: Approval Expires 12/31/94

FORM **CFS-1000**
(9-2-92)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1993 COMMODITY FLOW SURVEY
CENSUS OF TRANSPORTATION

(Please correct any error in name, address, and ZIP Code)

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by Census Bureau employees and may be used only for statistical purposes. Further, copies retained in respondents' files are immune from legal process.

RETURN TO

BUREAU OF THE CENSUS
1201 East 10th Street
Jeffersonville IN 47132-0001

INSTRUCTIONS

Please read the accompanying instructions before completing this questionnaire. The sampling instructions beginning on page 2 of the questionnaire describe how to take a **sample** of your outbound shipments **covering the two-week period shown above**. You should use your sales invoices, bills of lading, and any other file of shipping documents which represents your total outbound shipments (or deliveries).

Item F, Shipment Characteristics — Beginning on page 2, provide the information requested for each of your **sampled** shipments. If book figures are not available for weight, value, etc., please provide an estimate.

Item A ESTABLISHMENT NAME

Is the establishment name shown in the mailing address correct?

1 ☐ Yes 2 ☐ No — *Enter correct name.*

Item B OPERATIONAL STATUS OF ESTABLISHMENT — *Mark (X) the **ONE** box which best describes this establishment during the 2-week period shown above.*

1 ☐ In operation
2 ☐ Temporarily or seasonally inactive
3 ☐ Ceased operation — *Give date* → Month/Day/Year

Item C PHYSICAL LOCATION (PO boxes or rural routes are not physical locations.)

Is this establishment's physical location the same as the address shown in the label?

1 ☐ Yes 2 ☐ No — *Enter physical location below.*

Number and street		
City, town, village, etc.	State	ZIP Code

Item D ORIGIN OF SHIPMENTS

During the two-week period, did any of your shipments (or deliveries) originate from locations other than this physical location?

1 ☐ No — *Skip to Item E on page 2. Enter an "A" as the origin code in column (k) of item F for all shipments.*

2 ☐ Yes — *Enter the City, State, and ZIP Code of these other locations in rows B, C, and D.*

Origin code	City	State	ZIP Code
A	*Location in mailing address or in Item C.*	—	—
B			
C			
D			

Does your **Census File Number (CFN)** shown in the address box above, begin with a "0" (zero)?

1 ☐ Yes — *Include shipments from those other locations in your sampling, and use the appropriate origin code (A, B, C, or D) in column (k) of item F for all shipments selected. Now skip to Item E.*

2 ☐ No — Do any of these other locations keep their own records for these shipments?

1 ☐ Yes — *Omit shipments from these other locations that maintain their own records from your sampling.*

2 ☐ No — *Include shipments from these other locations in your sample, and place the appropriate origin code (A, B, C, or D) in column (k) of item F for all shipments selected.*

FOR ASSISTANCE IN COMPLETING THIS FORM, CALL 1-800-528-3049

CONTINUE ON PAGE 2

Item E **SOURCE DOCUMENT**

Please mark (X) the **main** document that you will use to obtain the requested information.

1 ☐ Sales invoices
2 ☐ Bills of lading
3 ☐ Other — *Specify*

SAMPLE SELECTION INSTRUCTIONS

1. Enter your total number of shipments for the 2-week period. → ☐

NOTE — Remove any voided invoices, credit memoranda, etc. from the files, if possible, before estimating the total number of shipments.

2. Find the range in column (1) at right that includes the number entered in 1 above. Put an (X) in column (2) beside it.

3. If your total number of shipments is 40 or less, provide data for **every** shipment during the 2-week period in Item F. If the number of shipments is 41 or more, continue with steps 4 and 5 to select the shipments to report.

Number of shipments (1)	*Mark (X) one* (2)	"Take every" number (3)	Expected sample size (4)
0–40		*Select every shipment*	1–40
41—100		2	20—50
101—200		5	20—40
201—400		10	20—40
401—800		20	20—40
801—1600		40	20—40
1601 or more		*Call Census 1–800–528–3049*	

CONTINUE ON NEXT PAGE.

Item F **SHIPMENT CHARACTERISTICS**

Line No.	Shipment			Total				Commodity	
	Number	Date (c)		Value *(Dollars)* (d)			Weight *(Pounds)*	Code	Description *(Largest weight)*
(a)	(b)	M	D	Mil.	Thou.	Dol.	(e)	(f)	(g)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

Mode of transport codes for columns (i) and (n) ▶ **1 —** Parcel delivery, courier, or U.S. Postal Service **2 —** Private truck **3 —** For-hire truck **4 —** Railroad

Continued →

SAMPLE SELECTION INSTRUCTIONS — Continued

4. Note the "Take every" number in column (3) next to the "X" you marked in column (2). Beginning with the first shipment in the file for the period, count the shipments until you reach the "Take every" number. Select that shipment as the first one to report on in item F.

Continuing with the next shipment, begin counting from 1 until you reach the "Take every" number again. Select that shipment. Continue this process until you reach the end of the file.

EXAMPLE:

If 176 is entered in 1, mark (X) the third row of the table. The "Take every" number is 5. Begin counting with the first shipment in the file and select the 5th shipment to report in Item F. Now beginning with the 6th shipment, count off 5 more, and select the 10th shipment. Resume counting with the 11th and select the 15th, 20th shipment, etc. until you reach the end of the file. You will have selected 35 shipments to report on in Item F.

NOTE – If your sample of shipments includes any voided invoices, credit memoranda, etc., write "VOID" in column (b) for that shipment. Leave the rest of the line blank.

5. Sample validation — After sample selection is done, compare the number of selected shipments to the expected sample size in column (4). If the number of selected shipments is above or below the range, recheck the sample selection.

Hazardous material? *(Y/N)* (h)	Domestic mode(s) of transport *Enter all that apply using codes shown below.* (i)	Containerized? *(Y/N)* (j)	Origin code (k)	**Domestic** destination (or port/airport/border crossing of exit for exports) (l)			Export? *(Y/N)* (m)	Export mode (n)	**Foreign** destination (for export shipments only) (o)		Line No. (p)
				City	State	ZIP Code			City	Country	
											1
											2
											3
											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15

5 — Inland water and/or Great Lakes
6 — Deep sea water
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-1000 (9-2-92)

PLEASE CONTINUE ON PAGE 4.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No.	Shipment			Total				Commodity	
	Number	Date (c)		Value *(Dollars)* (d)			Weight *(Pounds)*	Code	Description *(Largest weight)*
(a)	(b)	M	D	Mil.	Thou.	Dol.	(e)	(f)	(g)
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									

Mode of transport codes for columns (i) and (n) ▶ **1** — Parcel delivery, courier, or U.S. Postal Service **2** — Private truck **3** — For-hire truck **4** — Railroad

Continued ⟶

Hazardous material? (Y/N) (h)	Domestic mode(s) of transport *Enter all that apply using codes shown below.* (i)	Containerized? (Y/N) (j)	Origin code (k)	**Domestic** destination (or port/airport/border crossing of exit for exports) (l)			Export? (Y/N) (m)	Export mode (n)	**Foreign** destination (for export shipments only) (o)		Line No. (p)
				City	State	ZIP Code			City	Country	
											16
											17
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											35
											36
											37
											38
											39
											40

5 — Inland water and/or Great Lakes
6 — Deep sea water
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-1000 (9-2-92)

PLEASE CONTINUE ON PAGE 6.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No.	Shipment			Total				Commodity	
	Number	Date (c)		Value *(Dollars)* (d)			Weight *(Pounds)*	Code	Description *(Largest weight)*
(a)	(b)	M	D	Mil.	Thou.	Dol.	(e)	(f)	(g)
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									

Mode of transport codes for columns (i) and (n) ▶ **1** — Parcel delivery, courier, or U.S. Postal Service **2** — Private truck **3** — For-hire truck **4** — Railroad

Continued →

REMARKS

Item G **CERTIFICATION**

Name of person to contact regarding this report – *Please print*	Telephone number – *Include area code*	Date
Signature	Title	

Hazardous material? *(Y/N)* (h)	Domestic mode(s) of transport *Enter all that apply using codes shown below.* (i)	Containerized? *(Y/N)* (j)	Origin code (k)	**Domestic** destination (or port/airport/border crossing of exit for exports) (l)			Export? *(Y/N)* (m)	Export mode (n)	**Foreign** destination (for export shipments only) (o)		Line No. (p)
				City	State	ZIP Code			City	Country	
											41
											42
											43
											44
											45
											46
											47
											48
											49
											50

5 — Inland water and/or Great Lakes
6 — Deep sea water
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

THANK YOU FOR COMPLETING YOUR REPORT

FORM CFS-1000 (9-2-92)

Page 7

OMB No. 0607-0753: Approval Expires 12/31/94

FORM **CFS-2000**
(7-7-93)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1993 COMMODITY FLOW SURVEY
CENSUS OF TRANSPORTATION

(Please correct any error in name, address, and ZIP Code)

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by Census Bureau employees and may be used only for statistical purposes. Further, copies retained in respondents' files are immune from legal process.

RETURN TO

BUREAU OF THE CENSUS
1201 East 10th Street
Jeffersonville IN 47132-0001

INSTRUCTIONS

NOTE NEW ITEMS: G, H, I, and J on pages 6 – 8.

Please complete these items even if you have no shipments to report during the two-week reporting period.

Item A ESTABLISHMENT NAME

Is the establishment name shown in the mailing address correct?

1 ☐ Yes 2 ☐ No — *Enter correct name.*

Item B OPERATIONAL STATUS OF ESTABLISHMENT — *Mark (X) the **ONE** box which best describes this establishment during the 2-week period shown above.*

1 ☐ In operation
2 ☐ Temporarily or seasonally inactive
3 ☐ Ceased operation — *Give date* → Month/Day/Year

Item C PHYSICAL LOCATION (PO boxes or rural routes are not physical locations.)

Is this establishment's physical location the same as the address shown in the label?

1 ☐ Yes 2 ☐ No — *Enter physical location below.*

Number and street		
City, town, village, etc.	State	ZIP Code

Item D ORIGIN OF SHIPMENTS

During the two-week period, did any of your shipments (or deliveries) originate from locations other than this physical location?

1 ☐ No — *Skip to Item E on page 2. Enter an "A" as the origin code in column (k) of item F for all shipments.*

2 ☐ Yes — *Enter the City, State, and ZIP Code of these other locations in rows B, C, and D.*

Origin code	City	State	ZIP Code
A	*Location in mailing address or in Item C.*	—	—
B			
C			
D			

Does your **Census File Number (CFN)** shown in the address box above, begin with a "0" (zero)?

1 ☐ Yes — *Include shipments from those other locations in your sampling, and use the appropriate origin code (A, B, C, or D) in column (k) of item F for all shipments selected. Now skip to Item E.*

2 ☐ No — Do any of these other locations keep their own records for these shipments?

1 ☐ Yes — *Omit shipments from these other locations that maintain their own records from your sampling.*

2 ☐ No — *Include shipments from these other locations in your sample, and place the appropriate origin code (A, B, C, or D) in column (k) of item F for all shipments selected.*

FOR ASSISTANCE IN COMPLETING THIS FORM, CALL 1-800-528-3049

CONTINUE ON PAGE 2

Item E **SOURCE DOCUMENT**

Please mark (X) the **main** document that you will use to obtain the requested information.

1 ☐ Sales invoices
2 ☐ Bills of lading
3 ☐ Other — *Specify*

SAMPLE SELECTION INSTRUCTIONS

1. Enter your total number of shipments for the 2-week period. → ☐

NOTE — Remove any voided invoices, credit memoranda, etc. from the files, if possible, before estimating the total number of shipments.

2. Find the range in column (1) at right that includes the number entered in 1 above. Put an (X) in column (2) beside it.

3. If your total number of shipments is 40 or less, provide data for **every** shipment during the 2-week period in Item F. If the number of shipments is 41 or more, continue with steps 4 and 5 to select the shipments to report.

Number of shipments (1)	*Mark (X) one* (2)	"Take every" number (3)	Expected sample size (4)
0–40		*Select every shipment*	1–40
41—100		2	20—50
101—200		5	20—40
201—400		10	20—40
401—800		20	20—40
801—1600		40	20—40
1601 or more		*Call Census 1–800–528–3049*	

CONTINUE ON NEXT PAGE.

Item F **SHIPMENT CHARACTERISTICS**

Line No.	Shipment			Total				Commodity	
	Number	Date (c)		Value *(Dollars)* (d)			Weight *(Pounds)*	Code	Description
(a)	(b)	M	D	Mil.	Thou.	Dol.	(e)	(f)	(g)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

Mode of transport codes for columns (i) and (n) ▶ **1 —** Parcel delivery, courier, or U.S. Postal Service **2 —** Private truck **3 —** For-hire truck **4 —** Railroad

Continued →

SAMPLE SELECTION INSTRUCTIONS — Continued

4. Note the "Take every" number in column (3) next to the "X" you marked in column (2). Beginning with the first shipment in the file for the period, count the shipments until you reach the "Take every" number. Select that shipment as the first one to report on in item F.

Continuing with the next shipment, begin counting from 1 until you reach the "Take every" number again. Select that shipment. Continue this process until you reach the end of the file.

EXAMPLE:

If 176 is entered in 1, mark (X) the third row of the table. The "Take every" number is 5. Begin counting with the first shipment in the file and select the 5th shipment to report in Item F. Now beginning with the 6th shipment, count off 5 more, and select the 10th shipment. Resume counting with the 11th and select the 15th, 20th shipment, etc. until you reach the end of the file. You will have selected 35 shipments to report on in Item F.

NOTE – If your sample of shipments includes any voided invoices, credit memoranda, etc., write "VOID" in column (b) for that shipment. Leave the rest of the line blank.

5. Sample validation — After sample selection is done, compare the number of selected shipments to the expected sample size in column (4). If the number of selected shipments is above or below the range, recheck the sample selection.

Hazardous material? *(Y/N)* (h)	Domestic mode(s) of transport *Enter all that apply using codes shown below.* (i)	Containerized? *(Y/N)* (j)	Origin code (k)	**Domestic** destination (or port/airport/border crossing of exit for exports) (l) City	State	ZIP Code	Export? *(Y/N)* (m)	Export mode (n)	**Foreign** destination (for export shipments only) (o) City	Country	Line No. (p)
											1
											2
											3
											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15

5 — Inland water and/or Great Lakes
6 — Deep sea water
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-2000 (7-7-93)

PLEASE CONTINUE ON PAGE 4.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No. (a)	Shipment Number (b)	Date (c) M	Date (c) D	Total Value (Dollars) (d) Mil.	Total Value (Dollars) (d) Thou.	Total Value (Dollars) (d) Dol.	Weight (Pounds) (e)	Commodity Code (f)	Commodity Description (g)
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									

Mode of transport codes for columns (i) and (n) ▶ **1** — Parcel delivery, courier, or U.S. Postal Service **2** — Private truck **3** — For-hire truck **4** — Railroad

Continued ⟶

FORM CFS-2000 (7-7-93)

Hazardous material? (Y/N) (h)	Domestic mode(s) of transport *Enter all that apply using codes shown below.* (i)	Containerized? (Y/N) (j)	Origin code (k)	**Domestic** destination (or port/airport/border crossing of exit for exports) (l)			Export? (Y/N) (m)	Export mode (n)	**Foreign** destination (for export shipments only) (o)		Line No. (p)
				City	State	ZIP Code			City	Country	
											16
											17
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											36
											37
											38
											39
											40

5 — Inland water and/or Great Lakes
6 — Deep sea water
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-2000 (7-7-93)

PLEASE CONTINUE ON PAGE 6.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No. (a)	Shipment: Number (b)	Shipment: Date (c) M	Shipment: Date (c) D	Total: Value (Dollars) (d) Mil.	Total: Value (Dollars) (d) Thou.	Total: Value (Dollars) (d) Dol.	Total: Weight (Pounds) (e)	Commodity: Code (f)	Commodity: Description (g)
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									

Mode of transport codes for columns (i) and (n) ▶ **1** — Parcel delivery, courier, or U.S. Postal Service **2** — Private truck **3** — For-hire truck **4** — Railroad

Continued →

Item G **AVAILABILITY AND USE OF ON-SITE SHIPPING FACILITIES**

In column (b), mark "Yes" or "No" for each type of shipping facility to indicate whether or not this type of facility existed on-site during 1993. For each "Yes" in column (b), mark "Yes" or "No" in column (c) to indicate whether or not you **used** the facility on your premises for **outbound shipments** during 1993.

Type of shipping facility (a)	Was a shipping facility of this type on your premises during 1993? (b)	Did you **use** this facility on your premises for **outbound shipments** during 1993? (c)
1. Rail siding	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
2. Waterway dock, Great Lakes	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
3. Waterway dock, inland water	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
4. Waterway dock, deep sea water	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
5. Airport/landing strip capable of handling your shipments	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
6. Pipeline terminal	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No

Hazardous material? *(Y/N)* (h)	Domestic mode(s) of transport *Enter all that apply using codes shown below.* (i)	Containerized? *(Y/N)* (j)	Origin code (k)	**Domestic** destination (or port/airport/border crossing of exit for exports) (l) City	State	ZIP Code	Export? *(Y/N)* (m)	Export mode (n)	**Foreign** destination (for export shipments only) (o) City	Country	Line No. (p)
											41
											42
											43
											44
											45
											46
											47
											48
											49
											50

5 — Inland water and/or Great Lakes **7 —** Pipeline **9 —** Other mode
6 — Deep sea water **8 —** Air **0 —** Unknown

Item H USE OF OFF-SITE SHIPPING FACILITIES

In column (b), mark "Yes" or "No" for each type of shipping facility to indicate whether or not you **used** an off-site facility of that type for **outbound shipments** during 1993. For those marked "Yes", enter the miles to that off-site facility in column (c), and the mode of transport used to reach that facility in column (d). The modes are listed below.

Type of shipping facility (a)	Did you **use** this type of off-site facility for **outbound shipments** during 1993? (b)	Distance to the off-site facility of this type that you used most in 1993 *(Report in miles - estimates are acceptable)* (c)	Mode of transport used to reach that facility *(Enter a code from the list below)* (d)
1. Rail siding	1 ☐ Yes → 2 ☐ No		
2. Waterway dock, deep sea water	1 ☐ Yes → 2 ☐ No		
3. Waterway dock, Great Lakes	1 ☐ Yes → 2 ☐ No		
4. Waterway dock, inland water	1 ☐ Yes → 2 ☐ No		
5. Airport/landing strip capable of handling your shipments	1 ☐ Yes → 2 ☐ No		
6. Pipeline terminal	1 ☐ Yes → 2 ☐ No		

1 – Trailer on Flat Car (TOFC) **3 –** For-Hire Truck **5 –** Water **7 –** Air
2 – Private Truck **4 –** Rail **6 –** Pipeline **8 –** Other

FORM CFS-2000 (7-7-93)

PLEASE CONTINUE ON PAGE 8.

Item I USE AND AVAILABILITY OF TRANSPORTATION EQUIPMENT

During 1993, did this location use any of the following types of equipment for outbound shipments? Please check yes or no. For each equipment type in Item 1 below enter the approximate percentage of your total outbound rail shipments that used that type of rail car. These percentages should add to 100%. If you had no rail shipments, leave the percentages blank.

Equipment (a)	Was this type of equipment used for outbound shipments during 1993? (b)	Percentage of total rail shipments (c)
1. Rail cars that:		
a. Your company owned/leased	1 ☐ Yes → 2 ☐ No	
b. A common carrier owned/leased	1 ☐ Yes → 2 ☐ No	
c. Another party owned/leased (e.g. receiver)	1 ☐ Yes → 2 ☐ No	
2. Trucks with 6 or more tires or truck-tractors that:		
a. Your company owned	1 ☐ Yes 2 ☐ No	
b. Your company leased, with driver	1 ☐ Yes 2 ☐ No	
c. Your company leased, without driver	1 ☐ Yes 2 ☐ No	
3. Truck trailers that your company owned or leased	1 ☐ Yes 2 ☐ No	
4. Aircraft that your company owned or leased	1 ☐ Yes 2 ☐ No	
5. Barges that your company owned or leased	1 ☐ Yes 2 ☐ No	
6. Other equipment that your company owned or leased – *Specify*	1 ☐ Yes 2 ☐ No	

Item J TRANSPORTATION DECISIONS

During 1993, who generally decided on the mode of transportation for your outbound shipments? *Mark (X) appropriate box.*

1 ☐ Your company 2 ☐ Receiver of shipment 3 ☐ Other

Remarks

Item K CERTIFICATION

Name of person to contact regarding this report – *Please print*	Telephone number – *Include area code*	Date
Signature	Title	

CFS-1100
(9-92)

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

Instructions for Completing the Commodity Flow Survey

NOTE: Some instructions are included on the questionnaire itself. However, due to space limitations, most of the instructions and definitions are included in separate reference materials. These include this instruction guide, and a listing of commodity codes to be used for classifying individual shipments in this survey.

Part I – GENERAL INFORMATION

Purpose of the Survey

The Commodity Flow Survey (CFS) will produce statistics on the movement of commodities and the types of transportation used. It will describe the relationships among shipment characteristics such as weight, value, mileage, type of commodity, and the type of transportation used. The results of this survey will provide a basis for in-depth analyses of policy issues that impact the transportation systems of the United States.

For the Commodity Flow Survey, we are asking you to use all of your basic documents such as sales invoices, bills of lading, shipping logs, etc., to provide the data needed regarding outbound movement of all commodities: date, value, weight, commodity description, hazardous material designation, mode of transport, whether containerized or not, and destination. For exports, we also ask the export mode of transportation, city and country of destination, and the port of exit. You are asked to provide the data only for a **sample** of your outbound shipments. Samples are used because they give valid results while reducing the time and cost involved in completing the questionnaire.

Your Report is Confidential

By law (Title 13 U.S. Code), the information you provide the Bureau of the Census is **strictly confidential**. Only sworn Census employees will have access to the reports or information obtained from your records. The data you provide will be used solely for statistical purposes and will be published only in summary form that **does not reveal** the operations of an individual company.

Part II – GENERAL INSTRUCTIONS AND INFORMATION FOR COMPLETING YOUR QUESTIONNAIRE

Steps in Completing the Survey

1. Fill in the information requested on the front page regarding the name,operational status, physical location of your establishment, and origin of shipments.
2. Gather your files and documents for all shipments/deliveries initiated **during the 2-week period specified on the front page of the questionnaire.**
3. Indicate the main source document used in Item E on page 2 of the questionnaire.
4. Following the Sample Selection Instructions on pages 2 and 3 of the questionnaire, select a sample of your total shipments for the 2-week period.
5. In Item F of the questionnaire, complete one line for each **sampled** shipment/delivery. Use the reference materials provided when completing columns f (commodity code), i (domestic modes of transportation), l (destination), and n (export mode).
6. Complete the contact, date, and signature information requested in Item G on page 6 of the questionnaire.
7. Return the completed questionnaire in the envelope by the due date printed on the front of the questionnaire. If you need additional time to complete your questionnaire, please call the 800 number listed below.
8. Please call 1-800-528-3049 if you have questions or require assistance.
9. If we should have questions regarding your report, a Census Bureau employee may call to ask for clarification. For this reason, we suggest that you retain copies of the documents for the sampled shipments separately from your other shipment documents. You may also find it useful to retain a copy of your completed questionnaire for your own records.

What We Mean by a "Shipment"

A "shipment" (or "delivery") is an individual movement of commodities **from** your establishment **to** one customer OR **to** another location of your 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.

Please note that for this survey:

> A full or partial truckload can be considered **one** shipment **only** if all the commodities are destined for one buyer/receiver at one location. If the truck makes multiple deliveries on a route, **each stop is considered (at least) one shipment.**

We realize that there may not be a one-to-one relationship between your shipments and the main document you use as a reference for this survey (e.g., sales invoice, bill of lading). For example, for some cases there may be more than one shipment per invoice or more than one invoice per shipment. If this is the case for your establishment, please remember to sample actual shipments, and not just documents.

What We Mean By "Commodities"

"Commodities" refers to items that your establishment produces, sells, or distributes, **not** to items that are considered as excess or by-products of your establishment's operation.

PLEASE INCLUDE FORM NAME AND NUMBER IN ALL CORRESPONDENCE.

For example, refuse, scrap paper, and returnable containers are not considered as "commodities", unless your establishment is specifically in the business of selling or otherwise providing scrap, waste, or recyclable materials to others.

Origin of Shipments – Item D

IF THIS ESTABLISHMENT ORIGINATES SHIPMENTS FROM OTHER PHYSICAL LOCATIONS, your completion of Item D is critical in determining which shipments to include and exclude prior to selecting your sample of shipments. Your responses here will also affect the entries you make in column (k) - "Origin Code" - of Item F. Please follow the instructions in this item carefully. The "CFN" is the 11- digit number following the letters "CFN" on the mailing label. If there is not enough space to enter all of your shipment origins in Item D, please call 1-800-528-3049 for assistance.

IF ALL OF YOUR SHIPMENTS ORIGINATE FROM THE MAILING ADDRESS ON THE QUESTIONNAIRE LABEL OR THE ACTUAL PHYSICAL ADDRESS REPORTED IN ITEM C, then all of your shipments should be subjected to sampling. Also, when completing Item F, you should enter "A" in column (k) - "Origin Code" - for all shipments.

Part III – INSTRUCTIONS FOR COMPLETING ITEM F

Complete one line for each selected shipment. Column definitions are provided below.

SHIPMENT NUMBER (column b) - Enter the invoice number, shipment number, or some other unique identification number that could be used by your establishment to find this particular shipping document if questions arise regarding your report.

DATE SHIPPED (column c) - Enter the month and day of the shipment. If shipment date is not available, use the invoice/shipping document date. Use numbers only. (e.g., use "03" for March)

TOTAL VALUE (column d) - Enter the dollar value, in whole dollars, of the entire shipment. The reported value should not include freight charges and excise taxes **(i.e., report the net selling value, f.o.b. plant)**. If the value is not directly available from your records, **please estimate**.

TOTAL WEIGHT (column e) - Enter the weight of the total shipment **in whole pounds**. If weight is not available from your records, please estimate.

COMMODITY CODE (column f) - Please use the **list of Commodity Codes in the enclosed Commodity Coding Manual** to select the proper code. For shipments with more than one commodity, enter only the code for the commodity with the greatest weight in the total shipment.

COMMODITY DESCRIPTION (column g) - Enter a full description of the commodity shipped. For shipments with more than one commodity, describe only the commodity with the greatest weight in the total shipment. Do not use trade names, catalog numbers, or other codes not familiar to persons outside your business.

HAZARDOUS MATERIALS SHIPMENT (column h) - Indicate whether or not the shipment **REQUIRED PLACARDING** for hazardous materials by entering **"Y or N"** (yes or no).

DOMESTIC MODE(S) OF TRANSPORT (column i) - Enter the code(s) for **all** modes of transport used for the shipment to its **domestic** destination (i.e., the destination reported in column l). For export shipments, this means list only the mode(s) of transport used to reach the port, airport, or border crossing. Codes are located at the bottom of pages 2,3,4 and 5 of the questionnaire. Enter all that apply, based on the definitions below:

- **Parcel Delivery/Courier/U.S. Postal Service** - Delivery services that carry letters, parcels, packages, and other small shipments that typically weigh less than 100 pounds. Includes bus parcel delivery service.
- **Private Truck** - Trucks operated by a temporary or permanent employee of this establishment or the buyer/receiver of the shipment.
- **For-hire Truck** - Trucks that carry freight for a fee collected from the shipper, recipient of the shipment, or an arranger of the transportation.
- **Railroad** - Any common carrier or private railroad.
- **Inland Water and/or Great Lakes** - Barges, ships, or ferries operating primarily on rivers and canals; in harbors, the Great Lakes, the Saint Lawrence Seaway; the Intracoastal Waterway, the Inside Passage to Alaska, major bays and inlets; or in the ocean close to the shoreline.
- **Deep Sea Water** - Barges, ships, or ferries operating primarily in the open ocean. Shipping on the Great Lakes and the Saint Lawrence Seaway is classified with inland water.
- **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.
- **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.
- **Other Mode** - Any mode not listed above.

- **Unknown** - The shipment **was not** carried by a parcel delivery/courier/U.S. Postal service, and you cannot determine what mode of transportation is used.

Note: Commodities that are "shipped" under their own power, such as boats, barges, ferries, ships, aircraft, trucks, and trains **should be classified with the appropriate mode above**. Commodities shipped under their own power for which an appropriate mode is not listed (e.g., buses, recreational vehicles) should be listed as "other" mode.

CONTAINERIZED (column j) - Indicate whether or not the shipment was containerized by entering **"Y or N"** (yes or no). "Containerized" means that the shipment **left your establishment** in an intermodal container or stackable tank without permanently attached wheels. These containers typically vary from 20 to 53 feet in length, and are carried on truck chassis, trains, and ships.

ORIGIN CODE (column k) - Enter the code letter (A,B,C or D) for the location from which the shipment originated (**unless** this establishment initiates/originates shipments from other locations, the origin code will always be "A"). Refer to Item D on the front of the questionnaire and the "Origin of Shipments" section on page 3 of these instructions.

DOMESTIC DESTINATION: CITY, STATE AND ZIP CODE (column l) - For domestic shipments, enter the city, state and 5-digit zip code of the buyer/receiver as it appears on the shipping document. Use the **"ship to"** address. Use the two letter state abbreviation shown in Part IV below. For **export shipments**, report the U.S. **port of exit** as the destination city. The port of exit is the port or airport from which the shipment left the country. In the case of land shipments into Mexico or Canada, it is the border crossing.

EXPORT SHIPMENT (column m) - Indicate whether or not the shipment is intended for export outside of the United States, by entering a **"Y or N"** (yes or no). For purposes of this survey, shipments to Puerto Rico and U.S. territories and possessions are considered **exports**.

EXPORT MODE (column n) - If the shipment is an export, enter the code for the mode of transport by which the shipment left the country. Codes are located at the bottom of pages 2,3,4, and 5 of the questionnaire.

FOREIGN DESTINATION (column o) - If the shipment is an export, enter the foreign **city and country of destination**. Be sure that the city reported for these shipments in the "Domestic Destination" column (l) is the U.S. port of exit.

Part IV – STATE ABBREVIATION LIST

Enter the State abbreviation as shown below in column (l) of the shipment sample form:

State	Abbrev.	State	Abbrev.
Alabama	AL	Montana	MT
Alaska	AK	Nebraska	NE
Arizona	AZ	Nevada	NV
Arkansas	AR	New Hampshire	NH
California	CA	New Jersey	NJ
Colorado	CO	New Mexico	NM
Connecticut	CT	New York	NY
Delaware	DE	North Carolina	NC
Dist. of Col.	DC	North Dakota	ND
Florida	FL	Ohio	OH
Georgia	GA	Oklahoma	OK
Hawaii	HI	Oregon	OR
Idaho	ID	Pennsylvania	PA
Illinois	IL	Rhode Island	RI
Indiana	IN	South Carolina	SC
Iowa	IA	South Dakota	SD
Kansas	KS	Tennessee	TN
Kentucky	KY	Texas	TX
Louisiana	LA	Utah	UT
Maine	ME	Vermont	VT
Maryland	MD	Virginia	VA
Massachusetts	MA	Washington	WA
Michigan	MI	West Virginia	WV
Minnesota	MN	Wisconsin	WI
Mississippi	MS	Wyoming	WY
Missouri	MO		

NOTICE - Public reporting burden for this collection of information is estimated to vary from 1.75 to 9 hours per response, with an average of 2.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Associate Director of Management Services, Attn: Paperwork Reduction Project 0607-0753, Room 2027, Bureau of the Census, Washington, DC 20233-0001; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attn: Paperwork Reduction Project 0607-0753, Washington, DC 20503.

PLEASE INCLUDE FORM NAME AND NUMBER IN ALL CORRESPONDENCE.