Detroit-Ann Arbor-Flint, MI CMSA

1997

Issued February 2000

EC97TCF-MA-MI(1)

1997 Economic Census

Transportation

1997 Commodity Flow Survey

U.S. Department of Transportation
BUREAU OF TRANSPORTATION STATISTICS

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

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. 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 economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- 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, which allows them to 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.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components 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 the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

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 range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 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 reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

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 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

1997 Commodity Flow Survey

GENERAL

The 1997 Commodity Flow Survey (CFS) is undertaken through a partnership between the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Transportation Statistics, U.S. Department of Transportation. This survey produces data on the movement of goods in the United States. It provides information on commodities shipped, their value, weight, and mode of transportation, as well as the origin and destination of shipments of manufacturing, mining, wholesale, and selected retail establishments. The CFS was last conducted in 1993. See the Comparability With the 1993 Commodity Flow Survey table (Appendix A) for a comparison between the 1997 and 1993 surveys. The data from the CFS are used by public policy analysts and for transportation planning and decision-making to assess the demand for transportation facilities and services, energy use, and safety risk and environmental concerns.

This report presents data on Metropolitan Area (MA) and Remainder of State (ROS) shipment characteristics. Additional reports include data for the United States, Census Regions, Divisions, states, hazardous material shipments, as well as selected data on exports.

METROPOLITAN AREA AND REMAINDER OF STATE

Data are provided for 86 selected Metropolitan Areas (MA) and Remainder of States (ROS). The Census Bureau and Bureau of Transportation Statistics (BTS) selected these MAs based on population counts from the 1996 Current Population Survey (CPS). For the purposes of the Commodity Flow Survey (CFS), these MAs are confined within state boundaries.

Please note:

This report presents data for selected major metropolitan areas (MAs) confined within state boundaries. Data are also presented for Remainder of State (ROS) . ROS is defined as the portion of a state not included in any of the selected major MAs. A list of counties comprising each MA and ROS is provided on the CFS Internet site at: www.census.gov/econ/www/cfsmain.html.

METROPOLITAN AREA DEFINITIONS

The general concept of a MA is that of a core area containing a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that core. The Federal Office of Management and Budget (OMB), designates and defines MAs following a set of official standards. (The MA standards for the 1990s were published in the Federal Register on March 30, 1990 B Vol. 55, No. 62, pp. 12154-12160.) The MA classification is provided for use by Federal agencies in the production, analysis, and publication of data.

Included among MAs are metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In additional, New England county metropolitan areas (NECMAs) are an alternative set of areas defined for the six New England states.

METROPOLITAN STATISTICAL AREAS

An MSA consists of one or more counties that contain a city of 50,000 or more inhabitants, or contain a Census Bureau defined urbanized area (UA) and have a total population of at least 100,000 (75,000 in New England). Counties containing the principal concentration of population - the largest city and surrounding densely settled area are components of the MSA. Additional counties qualify to be included by meeting a specified level of commuting to the counties containing the population concentration and by meeting certain other requirements of metropolitan character, such as a specified minimum population density or percentage of the population that is urban. MSAs in New England are defined in terms of cities and towns, following rules concerning commuting and population density.

CONSOLIDATED METROPOLITAN STATISTICAL AREAS

An area that meets the requirements to qualify as an MSA and also has a population of 1 million or more becomes a CMSA if component parts of the area are recognized as PMSAs.

PRIMARY METROPOLITAN STATISTICAL AREAS

Subareas may be defined within an area that meets the requirements to qualify as an MSA and also has a population of 1 million or more. The definition of these subareas called PMSAs requires meeting specified statistical criteria and have the support of local opinion. A PMSA consists of

a large urbanized county or a cluster of counties (cities and towns in New England) that demonstrate strong internal economic and social links in addition to close ties with the central core of the larger area. Upon the recognition of PMSAs, the entire area of which they are parts becomes a CMSA. All territory within a CMSA is also within some PMSA.

NEW ENGLAND COUNTY METROPOLITAN AREAS

NECMAs are county based alternatives to the city- and town-based MSAs and CMSAs in the six New England states. The county composition of a NECMA reflects the geographic extent of the corresponding MSAs or CMSAs. NECMAs are not defined for individual PMSAs.

MODES

Single modes for these reports are aggregated as follows:

Truck (includes shipments which went by private truck, for-hire truck only, or a combination of private truck and for-hire truck).

Rail.

All other single modes (includes water, air, and pipeline).

STANDARD CLASSIFICATION OF TRANSPORTED GOODS (SCTG) CODES

The SCTG codes for the Metropolitan Area and Remainder of State Reports are aggregated into nine commodity groupings. The following describes the two-digit SCTGs included in each commodity grouping:

SCTG group	SCTG title and two-digit codes
01-05	Agricultural products and fish
01	Live animals and live fish
02	Cereal grains
03	Agricultural products, except live animals, cereal grains and forage products
04	Animal feed and feed ingredients, cereal, straw, and eggs and other products of animal origin, n.e.c.
05	Meat, fish, seafood, and preparations
06-09	Grains, alcohol, and tobacco products
06	Milled grain products and preparations and bakery products
07	Prepared foodstuffs, n.e.c. and fats and oils
08	Alcoholic beverages
09	Tobacco products
10-14	Stone, nonmetallic minerals, and metallic ores
10	Monumental or building stone
11	Natural sands
12	Gravel and crushed stone
13	Nonmetallic minerals, n.e.c.
14	Metallic ores
15-20	Coal and petroleum products
15	Coal
17	Gasoline and aviation turbine fuel
18	Fuel oils
19	Products of petroleum refining, n.e.c. and coal products
20	Basic chemical
21-24	Pharmaceutical and chemical products
21	Pharmaceutical products
22	Fertilizer and fertilizer materials
23	Chemical products and preparations, n.e.c.
24	Plastics and rubber
25-30	Wood products and textiles and leather
25	Logs and other wood in the rough
26	Wood products
27	Pulp, newsprint, paper, and paperboard
28	Paper or paperboard articles
29	Printed products
30	Textiles, leather, and articles
31-34	Base metal and machinery
31	Nonmetallic mineral products
32	Base metal in primary or semifinished forms and in finished basic shapes
33	Articles of base metal
34	Machinery
35-38	Electronics, motorized vehicles, and precision instruments
35	Electronic and other electrical equipment and components, and office equipment
36	Vehicles
37	Transportation equipment, n.e.c.
38	Precision instruments and apparatus
39-43	Furniture and miscellaneous manufactured products
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs
40	Miscellaneous manufactured products
41	Waste and scrap
43	Mixed freight

INDUSTRY COVERAGE

The 1997 CFS covers business establishments in mining, manufacturing, wholesale trade, and selected retail industries. The survey also covers selected auxiliary establishments (e.g., warehouses) of in-scope multiunit and retail companies. The survey coverage excludes establishments classified as farms, forestry, fisheries, governments, construction, transportation, foreign establishments, services, and most establishments in retail.

The industries covered, as defined in the 1987 Standard Industrial Classification Manual (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)
13	Oil and gas extraction[1]
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

[1]We included establishments classified in SIC 13, Oil and Gas Extraction, in the initial coverage of the 1997 CFS. However, because of unresolved industry-wide reporting issues, we have removed shipments from these establishments from our 1997 CFS tabulations. The data collected from these establishments will be used as input to a special report at a later date.

Similarly, because establishments in SIC 13 are responsible for the overwhelming number of shipments classified in SCTG 16, Crude Petroleum, we have removed all shipments with SCTG 16 from the 1997 CFS publication results.

SHIPMENT COVERAGE

The CFS captures 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 are included in the CFS at the point that they left the importer's domestic location for shipment to another location. Shipments that are shipped through a foreign territory with both the origin and destination in the U.S. are 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 are included, with the domestic destination defined as the port of exit from the U.S.

The "Industry Coverage" section of the text lists the SIC groups covered by the CFS. Other industry areas that are 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 does cover the shipments of these products from the initial processing centers or terminal elevators onward.

MILEAGE CALCULATIONS

To compute shipment mileages for the 1997 CFS, The Center for Transportation Analysis (CTA) at Oak Ridge National Laboratory (ORNL) developed an integrated, intermodal transportation network modeling system. A secure data site was setup at ORNL to process census-supplied files containing data elements for individual CFS shipment records. Each record contained the ZIP Code of shipment origin and destination, and the mode or mode sequence reported. Each record also contained information on the type of commodity moved, its weight, dollar value and whether containerized or a hazardous material. Export shipments were also identified on the records, along with data on U.S. port of exit and foreign destination city and country. Encrypted data files were transmitted and returned from ORNL after processing, with turnaround of most files on a week-by-week basis. In this manner many shipment-specific data problems encountered by ORNL in their routing procedures were reported back to census in a timely fashion, allowing census to call back some shippers and thereby confirm, correct, or recover missing or otherwise unusable data. The ORNL system computed mileages, by mode, for all single modes and for any reported

multimodal sequence. This was done for any origin-destination pair of domestic ZIP Code locations, and for any internal ZIP Code of origin, via U.S. export port, to foreign (export) destination. Mileages between 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 then summing the lengths of individual links on these paths. Impedance is computed as a weighted combination of distance, time, and cost factors.

The ORNL multimodal network database is composed of individual modal-specific networks representing each of the major transportation modes—highway, rail, waterway, air, and pipeline. The links of 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. To simulate local access, test links are created from each five-digit ZIP Code centroid to nearby nodes on the network. For the truck network, local access is assumed to exist everywhere. For the other modes this is not true. Before any test links are created for these modes, a search procedure is used to determine if and where such networks are most likely to provide access to the ZIP Code. For shipments involving more than one mode, such as truck-rail or rail-water shipments, intermodal transfer links are added to the network database for the purpose of connecting the individual modal networks together for routing purposes. An intermodal terminals database and a number of terminal transfer models were developed at ORNL to identify likely transfer points for different classes of freight. A measure of link impedance was calculated for each access, line-haul, and intermodal transfer link traversed by a shipment. These impedances were mode specific and are based on various link characteristics. For example, the set of link characteristics for the highway network included speed impacting factors, such as the presence of divided or undivided roadway, the 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. Intermodal transfer link impedances are estimated in terms of the time it takes to move goods through such a transfer. In the case of rail and air freight, intercarrier transfer penalties are also considered in order to obtain proper route selections. A minimum path algorithm is used to find the minimum impedance path between a shipment's origin ZIP Code centroid and destination ZIP Code centroid. The cumulative length of the local access plus line-haul links on this path provides the estimated shipment distance. When rail was involved these shipment distances may be averaged over more than one path between an origin-destination pair.

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 U.S. totals for ton-miles and average miles per shipment.

DISCLOSURE RULES

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

EXPLANATION OF TERMS

Average miles per shipment. For the 1993 CFS, we excluded shipments of STCC 27, Printed Matter, from our calculation of average miles per shipment. We made this decision after determining that respondents in the 1993 CFS shipping newspapers, magazines, catalogs, etc., had used widely varying definitions of the term "shipment."

For the 1997 CFS, we made numerous efforts throughout our data collection and editing to produce consistent results from establishments shipping SCTG 29, Printed Products. As a result, we have included printed products in the average miles per shipment calculations for the 1997 CFS.

Commodity. Products 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 SCTG code for the major commodity contained in the shipment, defined as the commodity with the greatest weight in the total shipment.

Distance shipped. In some tables, 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 this and other 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.

Mode Definitions

In the instructions to the respondent, we defined the possible modes as follows:

1. **Parcel delivery/courier/U.S. Postal Service.** Delivery services, 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. **Shallow draft vessels.** 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.
6. **Deep draft vessel.** Barges, ships, or ferries operating primarily in the open ocean. Shipping on the Great Lakes and the Saint Lawrence Seaway is classified with shallow draft vessels.
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.** 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. **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, we have used additional terms for mode, which we define as follows:

1. **Air (includes truck and air).** Shipments that used air or a combination of truck and air.
2. **Single modes.** Shipments using only one of the above-listed modes, except parcel or other and unknown.
3. **Multiple modes.** Parcel, U.S. Postal Service or courier shipments or shipments for which two or more of the following modes of transportation were used:

   Private truck
   For-hire truck
   Rail
   Shallow draft vessel
   Deep draft vessel
   Pipeline

   We did not allow for multiple modes in combination with "parcel, U.S. Postal Service or courier," "unknown," or "other." By their nature, these shipments 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.
4. **Other multiple modes.** Shipments using any other mode combinations not specifically listed in the tables.
5. **Other and unknown modes.** Shipments for which modes were not reported, or were reported by the respondent as "Other" or "Unknown."
6. **Truck.** Shipments using for-hire truck only, private truck only, or a combination of for-hire truck and private truck.
7. **Water.** Shipments using shallow draft vessel only, deep draft vessel only, or Great Lakes vessel only. Combinations of these modes, such as shallow draft vessel and Great Lakes vessel are included as "Other multiple modes."
8. **Great Lakes.** In the tables in this publication, "Great Lakes" appears as a single mode. ORNL's transportation network and mileage calculation system allowed for separate mileage calculations for Great Lakes between the origin and destination ZIP Codes (see the "Mileage Calculations" section for more details).

Other Definitions and Terms

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 Classification of Transported Goods (SCTG). The commodities shown in this report are classified using the SCTG coding system. The SCTG coding system was developed jointly by agencies of the United States and Canadian governments based on the Harmonized System to address statistical needs in regard to products transported.

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 shallow draft vessels, 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 ton-miles data are displayed 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 tons data are displayed 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.)

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 value data are displayed in millions of dollars.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables for this publication:

D	Denotes figures withheld to avoid disclosing data for individual companies.
–	Represents zero or less than 1 unit of measure.
S	Data do not meet publication standards due to high sampling variability or other reasons.
CFS	Commodity Flow Survey.
lb	Pounds.
n.e.c.	Not elsewhere classified.
NA	Not applicable.
n.o.s.	Not otherwise specified.

OTHER TRANSPORTATION DATA

Users of transportation data may be especially interested in the following reports:

Economic Census: Transportation Sector covers establishments that provide passenger and freight transportation to the general public, government, or other businesses.

Published data include kind of business, geographic location, total operating revenue, annual and first quarter payroll, and number of employees for pay period including March 12.

Vehicle Inventory and Use Survey covers state and U.S. level statistics on the physical and operational characteristics of the Nation's truck, van, minivan, and sport utility vehicle population. Some of the types of data collected include number of vehicles, major use, body type, annual miles, model year, vehicle size, fuel type, operator classification, engine size, range of operation, weeks operated, products carried, and hazardous materials carried. This survey shows comparative statistics reflecting percent changes in number of vehicles between 1997 and 1992 for most characteristics.

Transportation Annual Survey covers firms with paid employees that provide commercial motor freight transportation and public warehousing services. Data collected include operating revenue and operating revenue by source, total expenses and expenses percentage of motor carrier freight revenue by commodity type, size of shipments handled, length of haul, and vehicle fleet inventory.

All results of the 1997 Economic Census are available on the Census Bureau Internet site *http://www.census.gov* and on compact discs (CD-ROM).

For more information on any Census Bureau product, including a description of electronic and printed reports being issued, see the web site or call Customer Services at 301-457-4100.

Table 1. **Shipment Characteristics by Mode of Transportation for Metropolitan Area of Origin: 1997**

[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		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
All modes	**191 935**	**100.0**	**190 168**	**100.0**	**25 977**	**100.0**	**226**
Single modes	**155 952**	**81.3**	**180 852**	**95.1**	**23 415**	**90.1**	**118**
Truck[1]	123 338	64.3	165 281	86.9	16 381	63.1	107
Rail	30 484	15.9	10 281	5.4	6 443	24.8	895
All other single modes	2 131	1.1	5 290	2.8	S	S	1 020
Multiple modes	**20 171**	**10.5**	**1 510**	**.8**	**1 488**	**5.7**	**503**
Parcel, U.S. Postal Service or courier	10 262	5.3	291	.2	131	.5	487
All other multiple modes	9 909	5.2	1 218	.6	1 357	5.2	1 439
Other and unknown modes	**15 812**	**8.2**	**S**	**S**	**1 074**	**4.1**	**S**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

[1]"Truck" as a single mode includes shipments which went by private truck only, for-hire truck only, or a combination of private truck and for-hire truck.

Table 2. **Inbound Shipment Characteristics by Mode of Transportation for Metropolitan Area of Destination: 1997**

[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		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
All modes	**227 843**	**100.0**	**225 995**	**100.0**	**54 725**	**100.0**	**337**
Single modes	**199 688**	**87.6**	**210 654**	**93.2**	**50 273**	**91.9**	**162**
Truck[1]	182 669	80.2	178 615	79.0	25 593	46.8	136
Rail	12 476	5.5	24 339	10.8	23 775	43.4	812
All other single modes	4 542	2.0	7 700	3.4	904	1.7	926
Multiple modes	**19 224**	**8.4**	**7 378**	**3.3**	**3 625**	**6.6**	**563**
Parcel, U.S. Postal Service or courier	15 867	7.0	440	.2	248	.5	563
All other multiple modes	3 357	1.5	6 938	3.1	3 378	6.2	553
Other and unknown modes	**8 931**	**3.9**	**S**	**S**	**827**	**1.5**	**128**

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S Data do not meet publication standards because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

[1]"Truck" as a single mode includes shipments which went by private truck only, for-hire truck only, or a combination of private truck and for-hire truck.

Table 3. Shipment Characteristics by Mode of Transportation and Distance Shipped for Metropolitan Area of Origin: 1997

[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	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
All modes	**191 935**	**100.0**	**190 168**	**100.0**	**25 977**	**100.0**
Less than 50 miles	77 275	40.3	135 297	71.1	3 108	12.0
50 to 99 miles	12 598	6.6	14 265	7.5	1 226	4.7
100 to 249 miles	26 451	13.8	20 990	11.0	4 668	18.0
250 to 499 miles	25 626	13.4	8 744	4.6	4 289	16.5
500 to 749 miles	21 057	11.0	6 017	3.2	4 709	18.1
750 to 999 miles	6 954	3.6	1 318	.7	1 431	5.5
1,000 to 1,499 miles	12 080	6.3	2 084	1.1	3 010	11.6
1,500 to 1,999 miles	8 387	4.4	1 126	.6	2 676	10.3
2,000 miles or more	1 507	.8	327	.2	860	3.3
Single modes	**155 952**	**100.0**	**180 852**	**100.0**	**23 415**	**100.0**
Less than 50 miles	68 769	44.1	128 705	71.2	3 032	13.0
50 to 99 miles	10 785	6.9	13 925	7.7	1 195	5.1
100 to 249 miles	23 133	14.8	20 613	11.4	4 589	19.6
250 to 499 miles	19 325	12.4	8 142	4.5	3 935	16.8
500 to 749 miles	15 317	9.8	5 516	3.1	4 318	18.4
750 to 999 miles	4 954	3.2	1 106	.6	1 189	5.1
1,000 to 1,499 miles	7 761	5.0	1 758	1.0	2 534	10.8
1,500 to 1,999 miles	4 850	3.1	820	.5	1 944	8.3
2,000 miles or more	1 058	.7	269	.1	680	2.9
Truck[1]	**123 338**	**100.0**	**165 281**	**100.0**	**16 381**	**100.0**
Less than 50 miles	67 298	54.6	125 662	76.0	2 996	18.3
50 to 99 miles	10 133	8.2	12 419	7.5	1 049	6.4
100 to 249 miles	16 956	13.7	15 246	9.2	3 249	19.8
250 to 499 miles	13 448	10.9	6 044	3.7	2 803	17.1
500 to 749 miles	7 466	6.1	3 371	2.0	2 416	14.8
750 to 999 miles	2 371	1.9	843	.5	875	5.3
1,000 to 1,499 miles	3 291	2.7	1 086	.7	1 591	9.7
1,500 to 1,999 miles	1 914	1.6	474	.3	1 075	6.6
2,000 miles or more	459	.4	137	–	326	2.0
Rail	**30 484**	**100.0**	**10 281**	**100.0**	**6 443**	**100.0**
Less than 50 miles	951	3.1	305	3.0	11	.2
50 to 99 miles	441	1.4	539	5.2	69	1.1
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	5 492	18.0	1 948	19.0	1 068	16.6
500 to 749 miles	7 698	25.3	2 138	20.8	1 895	29.4
750 to 999 miles	2 536	8.3	248	2.4	298	4.6
1,000 to 1,499 miles	4 262	14.0	479	4.7	726	11.3
1,500 to 1,999 miles	2 795	9.2	344	3.3	866	13.4
2,000 miles or more	588	1.9	S	S	S	S
All other single modes	**2 131**	**100.0**	**5 290**	**100.0**	**S**	**S**
Less than 50 miles	S	S	S	S	26	4.3
50 to 99 miles	212	9.9	967	18.3	76	12.8
100 to 249 miles	456	21.4	S	S	S	S
250 to 499 miles	385	18.1	S	S	S	S
500 to 749 miles	152	7.1	8	.1	7	1.1
750 to 999 miles	47	2.2	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	2	–	3	.5
2,000 miles or more	11	.5	S	S	S	S
Multiple modes	**20 171**	**100.0**	**1 510**	**100.0**	**1 488**	**100.0**
Less than 50 miles	3 170	15.7	124	8.2	5	.4
50 to 99 miles	838	4.2	41	2.7	5	.3
100 to 249 miles	2 876	14.3	139	9.2	34	2.3
250 to 499 miles	4 283	21.2	387	25.6	243	16.4
500 to 749 miles	4 116	20.4	332	22.0	276	18.5
750 to 999 miles	1 047	5.2	144	9.5	168	11.3
1,000 to 1,499 miles	1 549	7.7	115	7.6	176	11.8
1,500 to 1,999 miles	1 897	9.4	189	12.5	474	31.9
2,000 miles or more	395	2.0	39	2.6	106	7.1
Parcel, U.S. Postal Service or courier	**10 262**	**100.0**	**291**	**100.0**	**131**	**100.0**
Less than 50 miles	2 746	26.8	71	24.2	2	1.4
50 to 99 miles	747	7.3	23	7.7	2	1.9
100 to 249 miles	2 246	21.9	72	24.8	16	12.0
250 to 499 miles	1 424	13.9	50	17.2	24	18.3
500 to 749 miles	1 635	15.9	38	12.9	26	20.0
750 to 999 miles	382	3.7	12	4.0	12	9.4
1,000 to 1,499 miles	518	5.1	14	4.8	19	14.6
1,500 to 1,999 miles	397	3.9	10	3.4	22	16.7
2,000 miles or more	166	1.6	3	1.0	7	5.5
All other multiple modes	**9 909**	**100.0**	**1 218**	**100.0**	**1 357**	**100.0**
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	S	S	66	5.4	18	1.3
250 to 499 miles	2 859	28.8	337	27.6	220	16.2
500 to 749 miles	2 481	25.0	295	24.2	249	18.4
750 to 999 miles	664	6.7	133	10.9	156	11.5
1,000 to 1,499 miles	1 031	10.4	101	8.3	157	11.6
1,500 to 1,999 miles	1 500	15.1	179	14.7	452	33.3
2,000 miles or more	229	2.3	36	3.0	99	7.3

See footnotes at end of table.

Table 3. **Shipment Characteristics by Mode of Transportation and Distance Shipped for Metropolitan Area of Origin: 1997**—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	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
Other and unknown modes	**15 812**	**100.0**	**S**	**S**	**1 074**	**100.0**
Less than 50 miles	5 336	33.7	S	S	S	S
50 to 99 miles	974	6.2	299	3.8	26	2.4
100 to 249 miles	S	S	239	3.1	46	4.3
250 to 499 miles	S	S	216	2.8	111	10.3
500 to 749 miles	S	S	168	2.2	115	10.7
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	S	S	S	S	S	S

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[1]"Truck" as a single mode includes shipments which went by private truck only, for-hire truck only, or a combination of private truck and for-hire truck.

Table 4. Shipment Characteristics by Mode of Transportation and Shipment Size for Metropolitan Area of Origin: 1997

[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		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
All modes	**191 935**	**100.0**	**190 168**	**100.0**	**25 977**	**100.0**	**226**
Less than 50 lb	10 944	5.7	308	.2	71	.3	255
50 to 99 lb	3 748	2.0	203	.1	36	.1	179
100 to 499 lb	11 252	5.9	1 438	.8	253	1.0	171
500 to 749 lb	3 568	1.9	679	.4	101	.4	147
750 to 999 lb	2 946	1.5	569	.3	88	.3	154
1,000 to 9,999 lb	44 868	23.4	14 709	7.7	3 618	13.9	244
10,000 to 49,999 lb	67 595	35.2	62 052	32.6	11 493	44.2	175
50,000 to 99,999 lb	34 573	18.0	70 760	37.2	5 153	19.8	80
100,000 lb or more	12 441	6.5	39 451	20.7	5 165	19.9	122
Single modes	**155 952**	**100.0**	**180 852**	**100.0**	**23 415**	**100.0**	**118**
Less than 50 lb	4 113	2.6	172	–	14	–	82
50 to 99 lb	2 074	1.3	144	–	11	–	76
100 to 499 lb	8 644	5.5	1 274	.7	187	.8	137
500 to 749 lb	3 337	2.1	648	.4	91	.4	139
750 to 999 lb	2 724	1.7	547	.3	81	.3	149
1,000 to 9,999 lb	36 189	23.2	13 352	7.4	2 930	12.5	220
10,000 to 49,999 lb	61 678	39.5	59 853	33.1	10 714	45.8	170
50,000 to 99,999 lb	24 806	15.9	68 544	37.9	4 294	18.3	66
100,000 lb or more	12 388	7.9	36 319	20.1	5 092	21.7	125
Truck[1]	**123 338**	**100.0**	**165 281**	**100.0**	**16 381**	**100.0**	**107**
Less than 50 lb	3 706	3.0	170	.1	12	–	70
50 to 99 lb	1 955	1.6	144	–	10	–	72
100 to 499 lb	8 501	6.9	1 268	.8	181	1.1	133
500 to 749 lb	3 289	2.7	644	.4	89	.5	136
750 to 999 lb	2 698	2.2	543	.3	79	.5	146
1,000 to 9,999 lb	31 886	25.9	12 956	7.8	2 506	15.3	203
10,000 to 49,999 lb	51 763	42.0	58 356	35.3	9 311	56.8	153
50,000 to 99,999 lb	15 024	12.2	66 926	40.5	2 847	17.4	43
100,000 lb or more	4 515	3.7	24 273	14.7	1 345	8.2	48
Rail	**30 484**	**100.0**	**10 281**	**100.0**	**6 443**	**100.0**	**895**
Less than 50 lb	S	S	S	S	S	S	29
50 to 99 lb	S	S	S	S	S	S	S
100 to 499 lb	S	S	S	S	S	S	29
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	S	S	S	S	S	S	S
1,000 to 9,999 lb	4 218	13.8	355	3.5	384	6.0	1 034
10,000 to 49,999 lb	9 622	31.6	1 173	11.4	1 306	20.3	1 159
50,000 to 99,999 lb	9 656	31.7	1 449	14.1	1 261	19.6	877
100,000 lb or more	6 979	22.9	7 301	71.0	3 492	54.2	476
All other single modes	**2 131**	**100.0**	**5 290**	**100.0**	**S**	**S**	**1 020**
Less than 50 lb	S	S	2	–	2	.3	1 123
50 to 99 lb	S	S	–	–	1	.1	1 249
100 to 499 lb	143	6.7	7	.1	6	1.1	940
500 to 749 lb	S	S	S	S	S	S	578
750 to 999 lb	18	.8	2	–	2	.3	786
1,000 to 9,999 lb	85	4.0	S	S	S	S	902
10,000 to 49,999 lb	293	13.7	S	S	97	16.4	244
50,000 to 99,999 lb	S	S	S	S	S	S	1 103
100,000 lb or more	S	S	S	S	255	43.1	39
Multiple modes	**20 171**	**100.0**	**1 510**	**100.0**	**1 488**	**100.0**	**503**
Less than 50 lb	6 351	31.5	118	7.8	57	3.8	492
50 to 99 lb	1 496	7.4	50	3.3	24	1.6	484
100 to 499 lb	2 303	11.4	111	7.4	63	4.3	559
500 to 749 lb	173	.9	17	1.1	S	S	530
750 to 999 lb	S	S	6	.4	S	S	1 030
1,000 to 9,999 lb	5 703	28.3	553	36.6	632	42.5	1 143
10,000 to 49,999 lb	2 332	11.6	406	26.9	493	33.1	1 255
50,000 to 99,999 lb	S	S	S	S	S	S	793
100,000 lb or more	S	S	S	S	S	S	985
Parcel, U.S. Postal Service or courier	**10 262**	**100.0**	**291**	**100.0**	**131**	**100.0**	**487**
Less than 50 lb	6 331	61.7	118	40.5	56	43.1	490
50 to 99 lb	1 479	14.4	49	17.0	23	17.7	470
100 to 499 lb	2 213	21.6	105	36.0	47	35.5	461
500 to 749 lb	169	1.6	15	5.0	3	2.6	233
750 to 999 lb	66	.6	4	1.3	1	1.1	376
1,000 to 9,999 lb	S	S	S	S	S	S	31
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
All other multiple modes	**9 909**	**100.0**	**1 218**	**100.0**	**1 357**	**100.0**	**1 439**
Less than 50 lb	S	S	–	–	S	S	2 274
50 to 99 lb	16	.2	S	S	1	–	2 148
100 to 499 lb	S	S	7	.5	17	1.2	2 607
500 to 749 lb	S	S	S	S	S	S	2 516
750 to 999 lb	S	S	S	S	S	S	2 614
1,000 to 9,999 lb	5 699	57.5	552	45.3	632	46.6	1 147
10,000 to 49,999 lb	2 332	23.5	406	33.3	493	36.3	1 255
50,000 to 99,999 lb	S	S	S	S	S	S	793
100,000 lb or more	S	S	S	S	S	S	985

See footnotes at end of table.

Table 4. **Shipment Characteristics by Mode of Transportation and Shipment Size for Metropolitan Area of Origin: 1997**—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	Value		Tons		Ton-miles		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
Other and unknown modes	**15 812**	**100.0**	**S**	**S**	**1 074**	**100.0**	**S**
Less than 50 lb	480	3.0	18	.2	1	–	S
50 to 99 lb	178	1.1	9	.1	S	S	53
100 to 499 lb	304	1.9	53	.7	3	.2	S
500 to 749 lb	57	.4	14	.2	–	–	17
750 to 999 lb	50	.3	17	.2	1	–	S
1,000 to 9,999 lb	2 977	18.8	804	10.3	56	5.2	S
10,000 to 49,999 lb	3 586	22.7	1 792	23.0	286	26.6	139
50,000 to 99,999 lb	S	S	S	S	S	S	437
100,000 lb or more	S	S	S	S	S	S	S

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[1]"Truck" as a single mode includes shipments which went by private truck only, for-hire truck only, or a combination of private truck and for-hire truck.

Table 5. **Shipment Characteristics by Commodity Group for Metropolitan Area of Origin: 1997**

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

SCTG codes	Commodity code group description	Value		Tons		Ton-miles		Average miles per shipment
		Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
	Total	**191 935**	**100.0**	**190 168**	**100.0**	**25 977**	**100.0**	**226**
01-05	Agricultural products and fish	4 546	2.4	3 098	1.6	1 062	4.1	54
06-09	Grains, alcohol, and tobacco products	5 362	2.8	5 674	3.0	918	3.5	47
10-14	Stone, Nonmetallic minerals, and metallic ores	449	.2	39 160	20.6	1 072	4.1	38
15-20	Coal and petroleum products	14 645	7.6	47 356	24.9	3 505	13.5	S
21-24	Pharmaceutical and chemical products	10 455	5.4	3 847	2.0	1 559	6.0	276
25-30	Wood products, and textiles and leather	7 366	3.8	3 294	1.7	648	2.5	257
31-34	Base metal and machinery	40 966	21.3	60 205	31.7	7 801	30.0	256
35-38	Electronics, motorized vehicles, and precision instruments	92 976	48.4	17 410	9.2	7 408	28.5	261
39-43	Furniture and miscellaneous manufactured products	14 826	7.7	9 897	5.2	1 986	7.6	287
–	Commodity unknown	344	.2	227	.1	19	–	128

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

Note: Data exclude shipments of SCTG 16, Crude Petroleum. See the section "Industry Coverage" for additional information.

Table 6. Shipment Characteristics by Commodity Group and Mode of Transportation for Metropolitan Area of Origin: 1997

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

Commodity code group, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
ALL COMMODITIES							
All modes	**191 935**	**100.0**	**190 168**	**100.0**	**25 977**	**100.0**	**226**
Single modes	**155 952**	**81.3**	**180 852**	**95.1**	**23 415**	**90.1**	**118**
Truck[1]	123 338	64.3	165 281	86.9	16 381	63.1	107
Rail	30 484	15.9	10 281	5.4	6 443	24.8	895
All other single modes	2 131	1.1	5 290	2.8	S	S	1 020
Multiple modes	**20 171**	**10.5**	**1 510**	**.8**	**1 488**	**5.7**	**503**
Parcel, U.S. Postal Service or courier	10 262	5.3	291	.2	131	.5	487
All other multiple modes	9 909	5.2	1 218	.6	1 357	5.2	1 439
Other and unknown modes	**15 812**	**8.2**	**S**	**S**	**1 074**	**4.1**	**S**
SCTG 01-05, AGRICULTURAL PRODUCTS AND FISH							
All modes	**4 546**	**100.0**	**3 098**	**100.0**	**1 062**	**100.0**	**54**
Single modes	**4 409**	**97.0**	**2 997**	**96.8**	**1 041**	**98.1**	**56**
Truck[1]	4 355	95.8	2 634	85.0	723	68.0	56
Rail	S	S	S	S	S	S	812
All other single modes	–	–	–	–	–	–	–
Multiple modes	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Parcel, U.S. Postal Service or courier	–	–	–	–	–	–	–
All other multiple modes	–	–	–	–	–	–	–
Other and unknown modes	**137**	**3.0**	**S**	**S**	**S**	**S**	**S**
SCTG 06-09, GRAINS, ALCOHOL, AND TOBACCO PRODUCTS							
All modes	**5 362**	**100.0**	**5 674**	**100.0**	**918**	**100.0**	**47**
Single modes	**5 232**	**97.6**	**5 594**	**98.6**	**855**	**93.1**	**47**
Truck[1]	5 206	97.1	5 555	97.9	794	86.5	46
Rail	21	.4	39	.7	60	6.5	1 570
All other single modes	S	S	S	S	S	S	1 114
Multiple modes	**S**	**S**	**S**	**S**	**S**	**S**	**1 147**
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	954
All other multiple modes	S	S	S	S	S	S	2 595
Other and unknown modes	**80**	**1.5**	**62**	**1.1**	**S**	**S**	**S**
SCTG 10-14, STONE, NONMETALLIC MINERALS, AND METALLIC ORES							
All modes	**449**	**100.0**	**39 160**	**100.0**	**1 072**	**100.0**	**38**
Single modes	**366**	**81.6**	**34 243**	**87.4**	**1 010**	**94.2**	**34**
Truck[1]	364	81.1	34 202	87.3	1 001	93.4	34
Rail	S	S	S	S	S	S	255
All other single modes	–	–	–	–	–	–	–
Multiple modes	**S**	**S**	**S**	**S**	**S**	**S**	**S**
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
All other multiple modes	S	S	S	S	S	S	41
Other and unknown modes	**S**	**S**	**S**	**S**	**S**	**S**	**S**
SCTG 15-20, COAL AND PETROLEUM PRODUCTS							
All modes	**14 645**	**100.0**	**47 356**	**100.0**	**3 505**	**100.0**	**S**
Single modes	**14 488**	**98.9**	**47 313**	**99.9**	**3 488**	**99.5**	**67**
Truck[1]	13 115	89.6	41 371	87.4	2 440	69.6	62
Rail	208	1.4	831	1.8	544	15.5	709
All other single modes	S	S	5 111	10.8	S	S	513
Multiple modes	**140**	**1.0**	**S**	**S**	**S**	**S**	**474**
Parcel, U.S. Postal Service or courier	S	S	3	–	S	S	474
All other multiple modes	S	S	S	S	S	S	867
Other and unknown modes	**17**	**.1**	**S**	**S**	**S**	**S**	**S**

See footnotes at end of table.

Table 6. **Shipment Characteristics by Commodity Group and Mode of Transportation for Metropolitan Area of Origin: 1997**—Con.

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

Commodity code group, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
SCTG 21-24, PHARMACEUTICAL AND CHEMICAL PRODUCTS							
All modes	**10 455**	**100.0**	**3 847**	**100.0**	**1 559**	**100.0**	**276**
Single modes	**8 945**	**85.6**	**3 568**	**92.7**	**1 418**	**90.9**	**130**
Truck[1]	8 514	81.4	3 384	88.0	1 258	80.7	119
Rail	327	3.1	183	4.8	S	S	711
All other single modes	S	S	1	–	1	–	1 025
Multiple modes	**1 262**	**12.1**	**103**	**2.7**	**70**	**4.5**	**477**
Parcel, U.S. Postal Service or courier	1 243	11.9	76	2.0	35	2.3	477
All other multiple modes	19	.2	28	.7	34	2.2	1 324
Other and unknown modes	**247**	**2.4**	**S**	**S**	**S**	**S**	**86**
SCTG 25-30, WOOD PRODUCTS, AND TEXTILES AND LEATHER							
All modes	**7 366**	**100.0**	**3 294**	**100.0**	**648**	**100.0**	**257**
Single modes	**6 057**	**82.2**	**3 135**	**95.2**	**617**	**95.2**	**101**
Truck[1]	6 031	81.9	3 124	94.8	588	90.7	100
Rail	S	S	S	S	S	S	2 552
All other single modes	2	–	–	–	–	–	981
Multiple modes	**880**	**11.9**	**57**	**1.7**	**21**	**3.2**	**476**
Parcel, U.S. Postal Service or courier	879	11.9	57	1.7	20	3.1	476
All other multiple modes	S	S	S	S	S	S	2 767
Other and unknown modes	**429**	**5.8**	**102**	**3.1**	**10**	**1.6**	**S**
SCTG 31-34, BASE METAL AND MACHINERY							
All modes	**40 966**	**100.0**	**60 205**	**100.0**	**7 801**	**100.0**	**256**
Single modes	**36 395**	**88.8**	**59 386**	**98.6**	**7 521**	**96.4**	**192**
Truck[1]	34 686	84.7	57 029	94.7	6 451	82.7	181
Rail	1 449	3.5	2 246	3.7	1 027	13.2	494
All other single modes	260	.6	S	S	S	S	1 083
Multiple modes	**3 490**	**8.5**	**194**	**.3**	**133**	**1.7**	**396**
Parcel, U.S. Postal Service or courier	3 275	8.0	79	.1	30	.4	396
All other multiple modes	S	S	S	S	S	S	S
Other and unknown modes	**1 082**	**2.6**	**625**	**1.0**	**147**	**1.9**	**64**
SCTG 35-38, ELECTRONICS, MOTORIZED VEHICLES, AND PRECISION INSTRUMENTS							
All modes	**92 976**	**100.0**	**17 410**	**100.0**	**7 408**	**100.0**	**261**
Single modes	**68 785**	**74.0**	**15 527**	**89.2**	**5 719**	**77.2**	**126**
Truck[1]	40 341	43.4	10 596	60.9	2 114	28.5	93
Rail	28 070	30.2	4 867	28.0	3 565	48.1	979
All other single modes	373	.4	S	S	S	S	1 082
Multiple modes	**12 639**	**13.6**	**922**	**5.3**	**1 001**	**13.5**	**668**
Parcel, U.S. Postal Service or courier	3 167	3.4	42	.2	24	.3	583
All other multiple modes	9 472	10.2	880	5.1	977	13.2	1 446
Other and unknown modes	**11 552**	**12.4**	**961**	**5.5**	**S**	**S**	**S**
SCTG 39-43, FURNITURE AND MISCELLANEOUS MANUFACTURED PRODUCTS							
All modes	**14 826**	**100.0**	**9 897**	**100.0**	**1 986**	**100.0**	**287**
Single modes	**11 016**	**74.3**	**8 914**	**90.1**	**1 733**	**87.3**	**142**
Truck[1]	10 465	70.6	7 211	72.9	998	50.3	133
Rail	330	2.2	1 699	17.2	732	36.9	425
All other single modes	S	S	3	–	S	S	1 012
Multiple modes	**1 646**	**11.1**	**164**	**1.7**	**194**	**9.8**	**590**
Parcel, U.S. Postal Service or courier	1 554	10.5	33	.3	20	1.0	589
All other multiple modes	93	.6	131	1.3	174	8.7	1 392
Other and unknown modes	**S**	**S**	**819**	**8.3**	**59**	**3.0**	**S**

See footnotes at end of table.

Table 6. **Shipment Characteristics by Commodity Group and Mode of Transportation for Metropolitan Area of Origin: 1997**—Con.

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

Commodity code group, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent	
COMMODITY UNKNOWN							
All modes	**344**	**100.0**	**227**	**100.0**	**19**	**100.0**	**128**
Single modes	**260**	**75.6**	**176**	**77.6**	**13**	**69.3**	**S**
Truck[1]	260	75.6	176	77.6	13	69.3	S
Rail	–	–	–	–	–	–	–
All other single modes	–	–	–	–	–	–	–
Multiple modes	**S**	**S**	**S**	**S**	**S**	**S**	**S**
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
All other multiple modes	S	S	S	S	S	S	206
Other and unknown modes	**S**	**S**	**S**	**S**	**S**	**S**	**101**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

[1]"Truck" as a single mode includes shipments which went by private truck only, for-hire truck only, or a combination of private truck and for-hire truck.

Note: Data exclude shipments of SCTG 16, Crude Petroleum. See the section "Industry Coverage" for additional information.

Table 7. **Outbound Shipment Characteristics by Destination for Metropolitan Area: 1997**

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

State, metropolitan area, and remainder of state destination	Value		Tons		Ton-miles	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
Total	**191 935**	**100.0**	**190 168**	**100.0**	**25 977**	**100.0**
Alabama	**714**	**.4**	**786**	**.4**	**622**	**2.4**
Alaska	**4**	**–**	**S**	**S**	**S**	**S**
Arizona	**1 620**	**.8**	**180**	**–**	**379**	**1.5**
Phoenix-Mesa, AZ MSA	1 129	.6	117	–	247	1.0
Remainder of Arizona	S	S	63	–	131	.5
Arkansas	**411**	**.2**	**177**	**–**	**167**	**.6**
California	**5 190**	**2.7**	**785**	**.4**	**1 923**	**7.4**
Los Angeles-Riverside-Orange County, CA CMSA	3 412	1.8	445	.2	1 061	4.1
Sacramento-Yolo, CA CMSA	S	S	S	S	S	S
San Diego, CA MSA	239	.1	11	–	27	.1
San Francisco-Oakland-San Jose, CA CMSA	1 112	.6	S	S	S	S
Remainder of California	288	.1	62	–	149	.6
Colorado	**S**	**S**	**126**	**–**	**166**	**.6**
Denver-Boulder-Greeley, CO CMSA	S	S	118	–	155	.6
Remainder of Colorado	122	–	8	–	S	S
Connecticut	**458**	**.2**	**82**	**–**	**55**	**.2**
Hartford, CT NECMA	271	.1	37	–	26	.1
Remainder of Connecticut	188	.1	45	–	29	.1
Delaware	**338**	**.2**	**62**	**–**	**37**	**.1**
District of Columbia	**12**	**–**	**S**	**S**	**S**	**S**
Washington, DC-MD-VA-WV PMSA (DC part)	12	–	S	S	S	S
Florida	**4 427**	**2.3**	**604**	**.3**	**761**	**2.9**
Jacksonville, FL MSA	898	.5	120	–	128	.5
Miami-Fort Lauderdale, FL CMSA	1 670	.9	222	.1	312	1.2
Orlando, FL MSA	574	.3	72	–	88	.3
Tampa-St Petersburg-Clearwater, FL MSA	731	.4	88	–	114	.4
West Palm Beach-Boca Raton, FL MSA	19	–	S	S	S	S
Remainder of Florida	535	.3	84	–	97	.4
Georgia	**4 270**	**2.2**	**881**	**.5**	**717**	**2.8**
Atlanta, GA MSA	3 996	2.1	608	.3	466	1.8
Remainder of Georgia	274	.1	273	.1	251	1.0
Hawaii	**S**	**S**	**S**	**S**	**S**	**S**
Idaho	**S**	**S**	**S**	**S**	**S**	**S**
Illinois	**6 893**	**3.6**	**3 756**	**2.0**	**1 248**	**4.8**
Chicago-Gary-Kenosha, IL-IN-WI CMSA (IL part)	4 673	2.4	2 831	1.5	860	3.3
St Louis, MO-IL MSA (IL part)	117	–	121	–	64	.2
Remainder of Illinois	2 104	1.1	804	.4	324	1.2
Indiana	**5 299**	**2.8**	**4 226**	**2.2**	**1 115**	**4.3**
Gary, IN PMSA	807	.4	1 710	.9	482	1.9
Indianapolis, IN MSA	1 454	.8	482	.3	140	.5
Remainder of Indiana	3 038	1.6	2 034	1.1	493	1.9
Iowa	**886**	**.5**	**384**	**.2**	**248**	**1.0**
Kansas	**768**	**.4**	**213**	**.1**	**182**	**.7**
Kansas City, MO-KS MSA (KS part)	399	.2	122	–	95	.4
Remainder of Kansas	369	.2	91	–	87	.3
Kentucky	**2 657**	**1.4**	**1 111**	**.6**	**465**	**1.8**
Louisville, KY-IN MSA (KY part)	1 609	.8	514	.3	206	.8
Remainder of Kentucky	1 047	.5	598	.3	259	1.0
Louisiana	**1 141**	**.6**	**164**	**–**	**184**	**.7**
New Orleans, LA MSA	S	S	S	S	S	S
Remainder of Louisiana	1 035	.5	152	–	169	.7
Maine	**140**	**–**	**23**	**–**	**13**	**–**
Maryland	**1 815**	**.9**	**441**	**.2**	**263**	**1.0**
Baltimore, MD PMSA	1 296	.7	279	.1	175	.7
Remainder of Maryland	519	.3	161	–	88	.3
Massachusetts	**1 677**	**.9**	**230**	**.1**	**152**	**.6**
Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA (MA part)	1 414	.7	197	.1	132	.5
Remainder of Massachusetts	S	S	33	–	20	–
Michigan	**89 652**	**46.7**	**146 716**	**77.2**	**4 563**	**17.6**
Detroit-Ann Arbor-Flint, MI CMSA	78 895	41.1	135 291	71.1	3 253	12.5
Grand Rapids-Muskegon-Holland, MI MSA	2 597	1.4	2 006	1.1	329	1.3
Remainder of Michigan	8 160	4.3	9 418	5.0	981	3.8
Minnesota	**2 060**	**1.1**	**457**	**.2**	**344**	**1.3**
Minneapolis-St Paul, MN-WI MSA (MN part)	1 526	.8	381	.2	276	1.1
Remainder of Minnesota	534	.3	76	–	68	.3
Mississippi	**289**	**.2**	**115**	**–**	**102**	**.4**
Missouri	**7 008**	**3.7**	**1 607**	**.8**	**1 071**	**4.1**
Kansas City, MO-KS MSA (MO part)	3 484	1.8	692	.4	532	2.0
St Louis, MO-IL MSA (MO part)	2 704	1.4	798	.4	456	1.8
Remainder of Missouri	821	.4	117	–	83	.3
Montana	**S**	**S**	**S**	**S**	**S**	**S**
Nebraska	**S**	**S**	**137**	**–**	**109**	**.4**
Nevada	**371**	**.2**	**35**	**–**	**79**	**.3**
Las Vegas, NV-AZ MSA (NV part)	S	S	S	S	S	S
Remainder of Nevada	S	S	19	–	S	S
New Hampshire	**100**	**–**	**94**	**–**	**53**	**.2**

See footnotes at end of table.

Table 7. **Outbound Shipment Characteristics by Destination for Metropolitan Area: 1997**—Con.

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

State, metropolitan area, and remainder of state destination	Value		Tons		Ton-miles	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
New Jersey	**3 428**	**1.8**	**666**	**.4**	**460**	**1.8**
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NJ part)	2 871	1.5	483	.3	328	1.3
Philadelphia, PA-NJ PMSA (NJ part)	538	.3	181	.1	131	.5
Remainder of New Jersey	S	S	S	S	S	S
New Mexico	**446**	**.2**	**40**	**–**	**66**	**.3**
New York	**3 252**	**1.7**	**917**	**.5**	**277**	**1.1**
Buffalo-Niagara Falls, NY MSA	1 084	.6	503	.3	S	S
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NY part)	910	.5	171	–	107	.4
Rochester, NY MSA	540	.3	72	–	16	–
Remainder of New York	719	.4	171	–	77	.3
North Carolina	**2 286**	**1.2**	**1 025**	**.5**	**831**	**3.2**
Charlotte-Gastonia-Rock Hill, NC-SC MSA (NC part)	570	.3	124	–	80	.3
Greensboro-Winston-Salem-High Point, NC MSA	1 103	.6	146	–	105	.4
Raleigh-Durham-Chapel Hill, NC MSA	88	–	20	–	14	–
Remainder of North Carolina	526	.3	735	.4	S	S
North Dakota	**182**	**–**	**21**	**–**	**26**	**.1**
Ohio	**15 804**	**8.2**	**15 916**	**8.4**	**2 319**	**8.9**
Cincinnati-Hamilton, OH-KY-IN CMSA (OH part)	813	.4	612	.3	158	.6
Cleveland-Akron, OH CMSA	3 984	2.1	3 031	1.6	479	1.8
Columbus, OH MSA	682	.4	584	.3	108	.4
Dayton-Springfield, OH MSA	1 488	.8	870	.5	181	.7
Remainder of Ohio	8 836	4.6	10 819	5.7	1 394	5.4
Oklahoma	**1 143**	**.6**	**S**	**S**	**S**	**S**
Oklahoma City, OK MSA	642	.3	71	–	77	.3
Remainder of Oklahoma	501	.3	S	S	S	S
Oregon	**832**	**.4**	**183**	**.1**	**456**	**1.8**
Portland-Salem, OR-WA CMSA (OR part)	742	.4	172	–	430	1.7
Remainder of Oregon	S	S	S	S	S	S
Pennsylvania	**3 623**	**1.9**	**1 947**	**1.0**	**832**	**3.2**
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA (PA part)	1 782	.9	270	.1	164	.6
Pittsburgh, PA MSA	423	.2	740	.4	232	.9
Remainder of Pennsylvania	1 419	.7	936	.5	S	S
Rhode Island	**41**	**–**	**S**	**S**	**S**	**S**
South Carolina	**860**	**.4**	**365**	**.2**	**314**	**1.2**
South Dakota	**S**	**S**	**S**	**S**	**S**	**S**
Tennessee	**2 575**	**1.3**	**731**	**.4**	**460**	**1.8**
Memphis TN-AR-MS MSA (TN part)	552	.3	79	–	65	.2
Nashville, TN MSA	1 052	.5	215	.1	127	.5
Remainder of Tennessee	971	.5	437	.2	268	1.0
Texas	**8 920**	**4.6**	**1 702**	**.9**	**2 383**	**9.2**
Austin-San Marcos, TX MSA	49	–	S	S	S	S
Dallas-Fort Worth, TX CMSA	1 804	.9	260	.1	319	1.2
Houston-Galveston-Brazoria, TX CMSA	3 109	1.6	471	.2	599	2.3
San Antonio, TX MSA	139	–	33	–	48	.2
Remainder of Texas	3 819	2.0	907	.5	1 379	5.3
Utah	**S**	**S**	**136**	**–**	**229**	**.9**
Salt Lake City-Ogden, UT MSA	S	S	87	–	147	.6
Remainder of Utah	S	S	S	S	S	S
Vermont	**S**	**S**	**S**	**S**	**S**	**S**
Virginia	**2 242**	**1.2**	**639**	**.3**	**518**	**2.0**
Norfolk-Virginia Beach-Newport News, VA-NC MSA (VA part)	1 457	.8	442	.2	396	1.5
Washington, DC-MD-VA-WV PMSA (VA part)	110	–	31	–	18	–
Remainder of Virginia	674	.4	166	–	104	.4
Washington	**1 701**	**.9**	**233**	**.1**	**589**	**2.3**
Seattle-Tacoma-Bremerton, WA CMSA	1 182	.6	182	.1	463	1.8
Remainder of Washington	519	.3	51	–	127	.5
West Virginia	**744**	**.4**	**S**	**S**	**175**	**.7**
Wisconsin	**2 307**	**1.2**	**1 292**	**.7**	**541**	**2.1**
Milwaukee-Racine, WI CMSA	1 033	.5	815	.4	322	1.2
Remainder of Wisconsin	1 274	.7	477	.3	219	.8
Wyoming	**S**	**S**	**S**	**S**	**S**	**S**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

Note: Exports are included in the geographic destination containing the port of exit or border crossing (final domestic destination).

Table 8. **Inbound Shipment Characteristics by Origin for Metropolitan Area: 1997**

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

State, metropolitan area, remainder of state of origin	Value		Tons		Ton-miles	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
Total	**227 843**	**100.0**	**225 995**	**100.0**	**54 725**	**100.0**
Alabama	**1 946**	**.9**	**734**	**.3**	**579**	**1.1**
Alaska	**S**	**S**	**S**	**S**	**S**	**S**
Arizona	**453**	**.2**	**S**	**S**	**S**	**S**
Phoenix-Mesa, AZ MSA	325	.1	12	–	24	–
Remainder of Arizona	128	–	S	S	S	S
Arkansas	**871**	**.4**	**419**	**.2**	**385**	**.7**
California	**7 078**	**3.1**	**1 074**	**.5**	**2 640**	**4.8**
Los Angeles-Riverside-Orange County, CA CMSA	4 585	2.0	454	.2	1 056	1.9
Sacramento-Yolo, CA CMSA	113	–	31	–	77	.1
San Diego, CA MSA	397	.2	S	S	S	S
San Francisco-Oakland-San Jose, CA CMSA	1 455	.6	144	–	370	.7
Remainder of California	528	.2	402	.2	1 031	1.9
Colorado	**908**	**.4**	**S**	**S**	**S**	**S**
Denver-Boulder-Greeley, CO CMSA	755	.3	S	S	S	S
Remainder of Colorado	153	–	37	–	47	–
Connecticut	**958**	**.4**	**77**	**–**	**50**	**–**
Hartford, CT NECMA	211	–	24	–	16	–
Remainder of Connecticut	747	.3	54	–	34	–
Delaware	**121**	**–**	**52**	**–**	**32**	**–**
District of Columbia	**S**	**S**	**S**	**S**	**S**	**S**
Washington, DC-MD-VA-WV PMSA (DC part)	S	S	S	S	S	S
Florida	**1 294**	**.6**	**396**	**.2**	**503**	**.9**
Jacksonville, FL MSA	S	S	11	–	11	–
Miami-Fort Lauderdale, FL CMSA	350	.2	S	S	S	S
Orlando, FL MSA	43	–	S	S	S	S
Tampa-St Petersburg-Clearwater, FL MSA	213	–	50	–	63	.1
West Palm Beach-Boca Raton, FL MSA	S	S	S	S	S	S
Remainder of Florida	375	.2	188	–	231	.4
Georgia	**2 903**	**1.3**	**1 402**	**.6**	**1 148**	**2.1**
Atlanta, GA MSA	1 512	.7	477	.2	346	.6
Remainder of Georgia	1 391	.6	925	.4	802	1.5
Hawaii	**S**	**S**	**S**	**S**	**S**	**S**
Idaho	**S**	**S**	**137**	**–**	**266**	**.5**
Illinois	**11 152**	**4.9**	**4 249**	**1.9**	**1 538**	**2.8**
Chicago-Gary-Kenosha, IL-IN-WI CMSA (IL part)	7 507	3.3	2 444	1.1	751	1.4
St Louis, MO-IL MSA (IL part)	180	–	288	.1	156	.3
Remainder of Illinois	3 464	1.5	1 517	.7	631	1.2
Indiana	**14 721**	**6.5**	**5 899**	**2.6**	**1 491**	**2.7**
Gary, IN PMSA	592	.3	1 226	.5	356	.7
Indianapolis, IN MSA	2 683	1.2	882	.4	274	.5
Remainder of Indiana	11 447	5.0	3 792	1.7	861	1.6
Iowa	**2 281**	**1.0**	**1 109**	**.5**	**639**	**1.2**
Kansas	**861**	**.4**	**281**	**.1**	**263**	**.5**
Kansas City, MO-KS MSA (KS part)	288	.1	90	–	72	.1
Remainder of Kansas	573	.3	191	–	191	.3
Kentucky	**6 355**	**2.8**	**2 785**	**1.2**	**1 229**	**2.2**
Louisville, KY-IN MSA (KY part)	3 243	1.4	550	.2	216	.4
Remainder of Kentucky	3 112	1.4	2 234	1.0	1 013	1.9
Louisiana	**1 278**	**.6**	**1 068**	**.5**	**1 288**	**2.4**
New Orleans, LA MSA	123	–	73	–	89	.2
Remainder of Louisiana	1 155	.5	995	.4	1 200	2.2
Maine	**126**	**–**	**46**	**–**	**25**	**–**
Maryland	**729**	**.3**	**128**	**–**	**73**	**.1**
Baltimore, MD PMSA	S	S	96	–	57	.1
Remainder of Maryland	267	.1	31	–	16	–
Massachusetts	**1 196**	**.5**	**144**	**–**	**80**	**.1**
Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA (MA part)	1 117	.5	127	–	70	.1
Remainder of Massachusetts	79	–	17	–	10	–
Michigan	**99 198**	**43.5**	**158 239**	**70.0**	**8 196**	**15.0**
Detroit-Ann Arbor-Flint, MI CMSA	78 895	34.6	135 291	59.9	3 253	5.9
Grand Rapids-Muskegon-Holland, MI MSA	6 474	2.8	3 650	1.6	589	1.1
Remainder of Michigan	13 829	6.1	19 298	8.5	4 354	8.0
Minnesota	**1 840**	**.8**	**S**	**S**	**S**	**S**
Minneapolis-St Paul, MN-WI MSA (MN part)	941	.4	468	.2	329	.6
Remainder of Minnesota	900	.4	S	S	S	S
Mississippi	**927**	**.4**	**345**	**.2**	**322**	**.6**
Missouri	**3 122**	**1.4**	**725**	**.3**	**486**	**.9**
Kansas City, MO-KS MSA (MO part)	643	.3	96	–	75	.1
St Louis, MO-IL MSA (MO part)	1 509	.7	247	.1	145	.3
Remainder of Missouri	970	.4	382	.2	267	.5
Montana	**80**	**–**	**S**	**S**	**S**	**S**
Nebraska	**802**	**.4**	**376**	**.2**	**318**	**.6**
Nevada	**76**	**–**	**26**	**–**	**59**	**.1**
Las Vegas, NV-AZ MSA (NV part)	49	–	S	S	S	S
Remainder of Nevada	27	–	21	–	48	–
New Hampshire	**823**	**.4**	**47**	**–**	**30**	**–**

See footnotes at end of table.

Table 8. **Inbound Shipment Characteristics by Origin for Metropolitan Area: 1997**—Con.

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

State, metropolitan area, remainder of state of origin	Value		Tons		Ton-miles	
	Number (million dollars)	Percent	Number (thousands)	Percent	Number (millions)	Percent
New Jersey	**3 794**	**1.7**	**748**	**.3**	**488**	**.9**
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NJ part)	3 081	1.4	565	.2	376	.7
Philadelphia, PA-NJ PMSA (NJ part)	S	S	170	–	103	.2
Remainder of New Jersey	S	S	14	–	9	–
New Mexico	**108**	**–**	**35**	**–**	**55**	**.1**
New York	**4 702**	**2.1**	**1 063**	**.5**	**333**	**.6**
Buffalo-Niagara Falls, NY MSA	1 247	.5	354	.2	50	–
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NY part)	1 022	.4	213	–	144	.3
Rochester, NY MSA	1 489	.7	180	–	55	.1
Remainder of New York	945	.4	317	.1	84	.2
North Carolina	**2 535**	**1.1**	**655**	**.3**	**445**	**.8**
Charlotte-Gastonia-Rock Hill, NC-SC MSA (NC part)	635	.3	99	–	66	.1
Greensboro-Winston-Salem-High Point, NC MSA	311	.1	48	–	29	–
Raleigh-Durham-Chapel Hill, NC MSA	140	–	S	S	S	S
Remainder of North Carolina	1 448	.6	471	.2	321	.6
North Dakota	**92**	**–**	**146**	**–**	**151**	**.3**
Ohio	**25 102**	**11.0**	**15 254**	**6.7**	**2 406**	**4.4**
Cincinnati-Hamilton, OH-KY-IN CMSA (OH part)	2 606	1.1	1 706	.8	441	.8
Cleveland-Akron, OH CMSA	4 060	1.8	2 118	.9	389	.7
Columbus, OH MSA	1 420	.6	601	.3	122	.2
Dayton-Springfield, OH MSA	3 951	1.7	605	.3	134	.2
Remainder of Ohio	13 065	5.7	10 224	4.5	1 320	2.4
Oklahoma	**491**	**.2**	**299**	**.1**	**321**	**.6**
Oklahoma City, OK MSA	226	.1	66	–	71	.1
Remainder of Oklahoma	265	.1	233	.1	249	.5
Oregon	**380**	**.2**	**178**	**–**	**460**	**.8**
Portland-Salem, OR-WA CMSA (OR part)	215	–	S	S	S	S
Remainder of Oregon	165	–	108	–	276	.5
Pennsylvania	**3 689**	**1.6**	**3 706**	**1.6**	**1 579**	**2.9**
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA (PA part)	738	.3	S	S	143	.3
Pittsburgh, PA MSA	1 122	.5	1 477	.7	574	1.0
Remainder of Pennsylvania	1 828	.8	1 987	.9	862	1.6
Rhode Island	**66**	**–**	**4**	**–**	**3**	**–**
South Carolina	**1 720**	**.8**	**414**	**.2**	**312**	**.6**
South Dakota	**S**	**S**	**125**	**–**	**138**	**.3**
Tennessee	**3 854**	**1.7**	**1 297**	**.6**	**776**	**1.4**
Memphis TN-AR-MS MSA (TN part)	297	.1	87	–	65	.1
Nashville, TN MSA	1 031	.5	249	.1	137	.3
Remainder of Tennessee	2 527	1.1	961	.4	574	1.0
Texas	**S**	**S**	**S**	**S**	**S**	**S**
Austin-San Marcos, TX MSA	482	.2	S	S	S	S
Dallas-Fort Worth, TX CMSA	S	S	150	–	180	.3
Houston-Galveston-Brazoria, TX CMSA	S	S	S	S	S	S
San Antonio, TX MSA	126	–	7	–	10	–
Remainder of Texas	1 556	.7	794	.4	1 154	2.1
Utah	**469**	**.2**	**75**	**–**	**128**	**.2**
Salt Lake City-Ogden, UT MSA	451	.2	61	–	104	.2
Remainder of Utah	18	–	S	S	S	S
Vermont	**161**	**–**	**20**	**–**	**7**	**–**
Virginia	**1 216**	**.5**	**1 003**	**.4**	**574**	**1.0**
Norfolk-Virginia Beach-Newport News, VA-NC MSA (VA part)	225	.1	80	–	61	.1
Washington, DC-MD-VA-WV PMSA (VA part)	44	–	8	–	4	–
Remainder of Virginia	947	.4	915	.4	509	.9
Washington	**774**	**.3**	**297**	**.1**	**720**	**1.3**
Seattle-Tacoma-Bremerton, WA CMSA	489	.2	81	–	193	.4
Remainder of Washington	285	.1	216	.1	527	1.0
West Virginia	**1 100**	**.5**	**2 795**	**1.2**	**1 289**	**2.4**
Wisconsin	**5 737**	**2.5**	**2 245**	**1.0**	**1 072**	**2.0**
Milwaukee-Racine, WI CMSA	2 948	1.3	634	.3	249	.5
Remainder of Wisconsin	2 789	1.2	1 611	.7	824	1.5
Wyoming	**76**	**–**	**2 473**	**1.1**	**3 750**	**6.9**

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D Denotes figures withheld to avoid disclosing data for individual companies.
S Data do not meet publication standards because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

Note: Exports are included in the geographic destination containing the port of exit or border crossing (final domestic destination).

Appendix A.
Comparability With the 1993 Commodity Flow Survey

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 CFS was first conducted in 1993. For the 1997 CFS, the Census Bureau incorporated improvements identified from the evaluation of previous surveys and additional research. The following table shows a comparison of the 1993 and 1997 surveys.

Item	1993	1997
1. Industry coverage	Manufacturers (minor exceptions)	Manufacturers (minor exceptions)
	Mining (except mining services and oil and gas extraction)	Mining (except mining services)
	All wholesale	All wholesale
	Video tape distributers	
	Catalog mail-order houses	Catalog mail-order houses
	Auxiliaries (e.g., warehouses)	Auxiliaries (e.g., warehouses)
2. Commodity classification system	Standard Transportation Commodity Classification (STCC), developed by the American Association of Railroads (AAR).	Standard Classification of Transported Goods (SCTG).
3. Sample size	Approximately 200,000 establishments were selected from a universe of about 800,000 in-scope establishments on the 1992 Standard Statistical Establishment List (SSEL).	Approximately 100,000 establishments were selected from a universe of about 800,000 in-scope establishments on the 1995 Standard Statistical Establishment List (SSEL).
4. Survey methodology	Respondents took a sample of their individual outbound shipments for a 2-week period during each of the four calendar quarters of 1993.	Respondents took a sample of their individual outbound shipments for a 1-week period during each of the four calendar quarters of 1997.
	Respondents reported key characteristics for each sampled shipment.	Respondents reported key characteristics for each sampled shipment.
5. Reported mode of transportation	Rail	Rail
	For-hire truck	For-hire truck
	Private truck	Private truck
	Air	Air
	Inland water and/or Great Lakes	Shallow draft vessel
	Deep sea water	Deep draft vessel
	Pipeline	Pipeline
	Parcel, U.S. Postal Service, or courier	Parcel, U.S. Postal Service, or courier
	Other	Other
	Unknown	Unknown

Item	1993	1997
6. Data items requested on questionnaire	For **each** shipment:	For **each** shipment:
	Total value	Total value
	Total weight	Total weight
	Major commodity (STCC)	**Major** commodity (SCTG)
	All modes of transportation	**All** modes of transportation
	Multiple origins (respondents specifically requested to report all shipment origins for the sampled establishment and report the appropriate origin for each shipment; assumed to always be the mailing address if no other origins listed).	Single origin (assumed to be the mailing address unless the respondent provided a different physical location address).
	Destination	Destination
	Containerized (Y/N)	Containerized (Y/N)
	Hazardous material (Y/N)	Hazardous material (UN/NA codes)
	Export (Y/N)	Export (Y/N)
	If export, mode of export, foreign country, and city of destination.	If export, mode of export, foreign country,and city of destination.

Appendix B. Reliability of the Estimates

An estimate based on a sample survey potentially contains two types of errors—sampling and nonsampling. Sampling error occurs because characteristics differ among sampling units and because only a subset of the entire population is measured in a sample survey. Nonsampling error encompasses all other factors that contribute to the total error of a sample survey estimate. The accuracy of a survey result may be affected by these two types of errors.

Sampling and nonsampling errors are often measured by the quantities, bias and variance. The bias of an estimator of an unknown population value is the difference, averaged over all possible samples of the same size and design, between the estimator and the unknown population value. Any systematic error, or inaccuracy that affects all samples of a specified design in a similar way, may bias the resulting estimates. Variance is the squared difference, averaged over all possible samples of the same size and design, between an estimator and its average value. Descriptions of sampling and nonsampling errors for the 1997 Commodity Flow Survey (CFS) are provided in the following sections.

SAMPLING ERROR

Because the estimates are based on a sample, exact agreement with the results that would be obtained from a complete enumeration of all the shipments made in 1997 from all establishments included on the CFS sampling frame is not expected. However, because probability sampling was used at each stage of selection, it is possible to estimate the sampling variability of the survey estimates. For CFS estimates, sampling variability arises from each of the three stages of sampling. (See Appendix C for a description of the sample design.)

The particular sample used in this survey is one of a large number of samples of the same size and design that could have been selected. If all possible samples had been surveyed, under the same conditions, an estimate of an unknown population value could have been obtained from each sample. The estimates obtained from these samples give rise to a distribution of estimates for the unknown population value. A statistical measure of the variability among these estimates is the standard error, which can be approximated from any one sample. The coefficient of variation (or relative standard error) of an estimate is the standard error of the estimate divided by the estimate. Measures of sampling variability, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. (Technically, we should refer to the estimated standard error or the estimated coefficient of variation of an estimator. However, we have omitted this detail for the sake of brevity.) It is important to note that the standard error and coefficient of variation only measure sampling variability. They do not measure any biases in the estimates. All coefficients of variation are expressed as percents. Standard errors for the corresponding percentage estimates are also provided.

An estimate of an unknown population value and its approximate standard error can be used to construct a confidence interval. A confidence interval is a range about a given estimator that has a specified probability, or confidence, of containing the unknown population value. If, for each possible sample, an estimate of an unknown population value and the estimate's approximate standard error were obtained, then:

1. For approximately 90 percent of the possible samples, the interval from 1.65 standard errors below to 1.65 standard errors above the estimate would include the unknown population value.

2. For approximately 95 percent of the possible samples, the interval from two standard errors below to two standard errors above the estimate would include the unknown population value.

NONSAMPLING ERROR

Nonsampling error encompasses all other factors that contribute to the total error of a sample survey estimate and may also occur in censuses. It is often helpful to think of nonsampling error as arising from deficiencies or mistakes in the survey process. In the CFS, nonsampling error can be attributed to many sources: (1) nonresponse, (2) response errors, (3) differences in the interpretation of the questions, (4) mistakes in coding or keying the data obtained, and (5) other errors of collection, response, coverage, and processing. Although no direct measurement of the potential biases because of 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 its influence.

A potentially large source of bias in the estimates is due to nonresponse. Nonresponse is defined as the inability to obtain all the intended measurements or responses from all the selected establishments. Four levels of nonresponse can occur in the CFS: item, shipment, quarter (reporting week), and establishment. Item nonresponse

occurs either when a question is unanswered or the response to the question fails computer or analyst edits. Item nonresponse is corrected by imputation. (Imputation is the procedure by which a missing value is replaced by a predicted value obtained from an appropriate model.) Shipment, quarter, and establishment nonresponse are used to describe the inability to obtain sufficient information about a sampled shipment, quarter, or establishment, respectively, that prevents it from contributing to tabulations. Shipment and quarter nonresponse are corrected during the estimation procedure by reweighting. Reweighting allocates characteristics to the nonrespondents in proportion to the characteristics observed for the respondents. The amount of bias introduced by this nonresponse adjustment procedure depends on the extent to which the nonrespondents differ, characteristically, from the respondents. Establishment nonresponse is corrected during the estimation procedure by the SIC-level adjustment weight. (See Appendix C for a description of the estimation procedure.) In most cases of establishment nonresponse, none of the four questionnaires have been returned to the Census Bureau, after several attempts to elicit a response. Approximately 67 percent of the sampled establishments provided at least one quarter of data that contributed to tabulations.

Some possible sources of bias that are attributed to respondent-conducted sampling include misunderstanding the definition of a shipment, constructing an incomplete frame of shipments from which to sample, ordering the shipment sampling frame by selected shipment characteristics, and selecting shipment records by a method other than the one specified in the questionnaire's instructions. We often contacted respondents who reported shipments having atypically large value or weight when compared to the rest of their reported shipments. Upon contact, if we are able to collect information on all of a given respondent's large shipments made either for a particular reporting week or for the entire quarter, then we identify these large shipments as certainty shipments. (See Appendix C for a description of how certainty shipments are used in the estimation process.)

Table B–1. **Measures of Reliability for Shipment Characteristics by Mode of Transportation for Metropolitan Area of Origin: 1997**

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

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	**6.5**	**–**	**11.3**	**–**	**7.8**	**–**	**8.5**
Single modes	**8.1**	**2.6**	**12.5**	**3.3**	**9.5**	**2.5**	**15.3**
Truck	6.9	1.9	13.2	3.4	11.0	3.3	15.9
Rail	17.0	1.7	22.5	.6	15.0	2.5	5.6
All other single modes	27.4	.3	46.9	1.7	S	S	5.1
Multiple modes	**16.8**	**1.9**	**21.3**	**.3**	**20.9**	**1.5**	**4.8**
Parcel, U.S. Postal Service or courier	9.9	.3	8.8	–	8.7	–	5.3
All other multiple modes	31.4	1.8	25.8	.3	22.8	1.5	10.1
Other and unknown modes	**36.7**	**2.8**	**S**	**S**	**48.3**	**2.2**	**S**

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

Table B–2. **Measures of Reliability for Inbound Shipment Characteristics by Mode of Transportation for Metropolitan Area of Destination: 1997**

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

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	**2.4**	**–**	**8.2**	**–**	**16.9**	**–**	**4.4**
Single modes	**2.9**	**1.1**	**9.9**	**2.8**	**18.0**	**1.9**	**10.2**
Truck	3.1	1.1	11.2	3.6	11.9	5.2	10.8
Rail	18.5	1.0	22.0	2.2	27.8	5.2	9.2
All other single modes	16.4	.3	20.2	.8	18.9	.5	3.8
Multiple modes	**4.9**	**.5**	**32.1**	**1.3**	**28.6**	**1.9**	**4.4**
Parcel, U.S. Postal Service or courier	6.0	.5	5.2	–	6.3	–	4.4
All other multiple modes	16.8	.3	34.0	1.3	30.6	1.9	18.2
Other and unknown modes	**20.5**	**.8**	**S**	**S**	**14.1**	**.5**	**21.3**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Table B–3. Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for Metropolitan Area of Origin: 1997

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

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	**6.5**	**–**	**11.3**	**–**	**7.8**	**–**
Less than 50 miles	8.1	1.7	13.3	2.8	19.0	2.1
50 to 99 miles	5.6	.4	21.5	1.2	18.0	.5
100 to 249 miles	15.9	1.2	15.3	1.4	17.5	1.9
250 to 499 miles	7.0	1.0	10.2	.6	10.7	1.6
500 to 749 miles	7.5	.8	12.4	.4	12.4	1.9
750 to 999 miles	14.0	.4	14.4	–	13.2	.5
1,000 to 1,499 miles	14.2	.8	10.6	.1	8.9	.9
1,500 to 1,999 miles	13.1	.5	14.5	.1	14.4	2.0
2,000 miles or more	24.6	.2	38.4	–	37.7	.9
Single modes	**8.1**	**–**	**12.5**	**–**	**9.5**	**–**
Less than 50 miles	9.5	1.5	14.8	2.8	19.8	2.2
50 to 99 miles	6.2	.6	21.5	1.1	17.9	.5
100 to 249 miles	17.5	1.2	15.5	1.4	17.7	1.9
250 to 499 miles	6.6	1.0	10.9	.6	11.6	1.7
500 to 749 miles	7.9	.8	13.9	.4	13.8	2.3
750 to 999 miles	15.1	.3	17.7	–	16.4	.5
1,000 to 1,499 miles	16.0	.6	15.6	.2	13.8	1.1
1,500 to 1,999 miles	14.8	.4	16.9	.1	17.3	1.8
2,000 miles or more	35.2	.2	48.4	–	49.3	1.0
Truck	**6.9**	**–**	**13.2**	**–**	**11.0**	**–**
Less than 50 miles	10.0	1.9	15.4	3.0	20.1	3.3
50 to 99 miles	6.5	.6	25.6	1.3	22.3	.7
100 to 249 miles	7.9	.8	13.0	1.4	14.5	1.6
250 to 499 miles	5.4	.7	13.3	.5	14.1	1.7
500 to 749 miles	10.3	.6	21.1	.4	21.5	2.0
750 to 999 miles	15.8	.3	23.1	–	22.1	.8
1,000 to 1,499 miles	10.8	.2	13.8	–	13.6	.8
1,500 to 1,999 miles	17.0	.2	18.8	–	18.8	1.4
2,000 miles or more	37.4	.1	37.0	–	37.3	.6
Rail	**17.0**	**–**	**22.5**	**–**	**15.0**	**–**
Less than 50 miles	35.0	1.6	19.0	1.1	23.1	–
50 to 99 miles	47.9	.8	27.7	1.9	26.9	.3
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	16.5	3.3	9.0	3.4	10.0	1.9
500 to 749 miles	14.1	4.5	17.4	3.9	19.8	5.8
750 to 999 miles	28.5	1.4	22.5	.5	23.4	.8
1,000 to 1,499 miles	25.5	3.1	20.3	1.4	20.3	2.9
1,500 to 1,999 miles	19.1	1.5	22.3	1.4	22.9	3.7
2,000 miles or more	40.5	.9	S	S	S	S
All other single modes	**27.4**	**–**	**46.9**	**–**	**S**	**S**
Less than 50 miles	S	S	S	S	44.4	4.5
50 to 99 miles	48.9	2.4	43.7	4.5	46.3	4.8
100 to 249 miles	30.1	6.5	S	S	S	S
250 to 499 miles	46.0	7.7	S	S	S	S
500 to 749 miles	29.7	7.2	31.0	8.5	28.5	8.2
750 to 999 miles	43.6	1.0	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	42.0	2.3	42.0	4.3
2,000 miles or more	33.8	.4	S	S	S	S
Multiple modes	**16.8**	**–**	**21.3**	**–**	**20.9**	**–**
Less than 50 miles	15.7	2.0	24.9	1.0	38.9	–
50 to 99 miles	22.0	.9	27.4	.7	29.7	.1
100 to 249 miles	15.3	1.5	23.2	.9	23.2	.4
250 to 499 miles	25.2	2.1	30.5	3.9	32.3	3.5
500 to 749 miles	16.9	1.3	18.9	2.2	19.1	2.3
750 to 999 miles	27.4	.9	35.5	4.0	35.7	5.0
1,000 to 1,499 miles	21.4	1.1	26.0	1.3	26.6	1.8
1,500 to 1,999 miles	22.6	1.4	21.1	3.8	20.8	6.7
2,000 miles or more	38.9	.5	36.4	.6	36.5	1.4
Parcel, U.S. Postal Service or courier	**9.9**	**–**	**8.8**	**–**	**8.7**	**–**
Less than 50 miles	13.9	2.0	10.5	2.3	9.5	.1
50 to 99 miles	23.9	1.6	29.0	1.5	37.5	.6
100 to 249 miles	14.0	1.8	12.4	1.6	13.1	.9
250 to 499 miles	5.6	1.7	13.3	1.6	14.0	1.9
500 to 749 miles	13.4	1.2	10.4	1.0	10.0	1.2
750 to 999 miles	19.9	.8	14.7	.5	15.3	1.0
1,000 to 1,499 miles	17.3	.6	11.3	.5	11.5	1.4
1,500 to 1,999 miles	22.3	.4	14.2	.4	13.9	1.4
2,000 miles or more	37.9	.6	21.7	.2	21.5	1.3
All other multiple modes	**31.4**	**–**	**25.8**	**–**	**22.8**	**–**
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	S	S	44.2	1.3	38.5	.4
250 to 499 miles	38.7	6.0	34.4	5.4	35.3	4.1
500 to 749 miles	25.6	8.1	20.9	4.5	20.8	2.8
750 to 999 miles	46.8	2.5	39.2	6.2	39.2	6.2
1,000 to 1,499 miles	27.3	4.6	29.1	1.8	29.5	2.2
1,500 to 1,999 miles	27.2	4.4	22.1	6.6	21.7	7.9
2,000 miles or more	44.9	.6	38.9	.7	38.7	1.5

See footnotes at end of table.

Table B–3. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for Metropolitan Area of Origin: 1997**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

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
Other and unknown modes	**36.7**	**–**	**S**	**S**	**48.3**	**–**
Less than 50 miles	24.9	12.7	S	S	S	S
50 to 99 miles	38.0	2.4	40.2	2.8	41.8	2.4
100 to 249 miles	S	S	47.2	2.4	42.3	5.2
250 to 499 miles	S	S	36.0	4.0	40.1	7.2
500 to 749 miles	S	S	42.1	2.6	43.9	3.2
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	S	S	S	S	S	S

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Table B–4. Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Size for Metropolitan Area of Origin: 1997

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

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	**6.5**	**–**	**11.3**	**–**	**7.8**	**–**	**8.5**
Less than 50 lb	4.6	.4	8.3	–	7.2	–	13.1
50 to 99 lb	8.3	.1	8.6	–	8.3	–	8.9
100 to 499 lb	7.0	.4	11.9	.2	19.1	.1	21.4
500 to 749 lb	7.0	.1	9.4	–	18.9	–	12.3
750 to 999 lb	10.3	.1	7.0	–	9.0	–	8.6
1,000 to 9,999 lb	8.1	2.2	13.5	.8	20.1	1.8	9.1
10,000 to 49,999 lb	4.6	2.3	14.1	2.7	10.3	3.0	10.1
50,000 to 99,999 lb	27.5	3.4	23.3	4.6	12.5	1.8	24.3
100,000 lb or more	28.7	1.3	16.8	3.4	15.4	2.9	21.8
Single modes	**8.1**	**–**	**12.5**	**–**	**9.5**	**–**	**15.3**
Less than 50 lb	10.0	.3	15.1	–	16.8	–	27.9
50 to 99 lb	7.7	.1	13.2	–	8.8	–	18.1
100 to 499 lb	7.5	.7	13.9	.2	21.8	.1	25.8
500 to 749 lb	5.8	.2	9.4	–	15.6	–	12.1
750 to 999 lb	10.3	.1	7.1	–	9.0	–	8.1
1,000 to 9,999 lb	9.4	2.5	14.4	.9	22.9	1.8	11.0
10,000 to 49,999 lb	6.3	2.3	14.6	2.8	11.2	2.9	9.9
50,000 to 99,999 lb	37.3	3.5	24.7	4.8	17.3	2.0	17.3
100,000 lb or more	28.8	1.5	18.0	3.3	15.3	3.3	21.0
Truck	**6.9**	**–**	**13.2**	**–**	**11.0**	**–**	**15.9**
Less than 50 lb	10.6	.4	15.2	–	17.7	–	29.1
50 to 99 lb	9.2	.2	13.3	–	9.6	–	18.3
100 to 499 lb	7.5	.8	14.1	.2	22.6	.1	26.2
500 to 749 lb	5.7	.2	9.5	–	15.3	–	11.6
750 to 999 lb	10.4	.2	7.3	–	9.4	–	7.4
1,000 to 9,999 lb	8.0	1.8	14.6	1.0	25.3	2.0	11.1
10,000 to 49,999 lb	5.5	1.7	14.8	2.9	11.0	2.6	9.0
50,000 to 99,999 lb	42.9	3.3	25.2	5.2	18.9	2.4	8.7
100,000 lb or more	36.0	1.2	24.9	3.1	19.9	1.7	25.0
Rail	**17.0**	**–**	**22.5**	**–**	**15.0**	**–**	**5.6**
Less than 50 lb	S	S	S	S	S	S	31.6
50 to 99 lb	S	S	S	S	S	S	S
100 to 499 lb	S	S	S	S	S	S	31.6
500 to 749 lb	–	–	–	–	–	–	–
750 to 999 lb	S	S	S	S	S	S	S
1,000 to 9,999 lb	40.9	7.8	37.8	2.1	35.9	2.7	17.4
10,000 to 49,999 lb	23.0	7.6	14.8	2.2	17.3	3.8	7.7
50,000 to 99,999 lb	34.9	6.6	12.5	3.3	25.6	4.9	15.1
100,000 lb or more	44.6	6.3	30.0	5.0	19.9	4.8	17.9
All other single modes	**27.4**	**–**	**46.9**	**–**	**S**	**S**	**5.1**
Less than 50 lb	S	S	22.9	4.3	25.7	5.3	6.1
50 to 99 lb	S	S	24.7	1.6	28.1	1.7	9.8
100 to 499 lb	20.6	8.7	41.6	10.0	35.3	9.0	10.1
500 to 749 lb	S	S	S	S	S	S	33.1
750 to 999 lb	48.1	1.4	46.3	2.6	47.1	2.0	26.4
1,000 to 9,999 lb	45.5	1.9	S	S	S	S	25.3
10,000 to 49,999 lb	46.7	7.9	S	S	49.2	7.6	34.3
50,000 to 99,999 lb	S	S	S	S	S	S	27.9
100,000 lb or more	S	S	S	S	49.3	13.7	27.3
Multiple modes	**16.8**	**–**	**21.3**	**–**	**20.9**	**–**	**4.8**
Less than 50 lb	8.2	5.2	8.0	2.1	8.8	1.0	5.6
50 to 99 lb	13.6	1.4	13.6	.9	10.8	.4	6.0
100 to 499 lb	23.4	2.7	14.5	2.3	22.6	1.5	11.4
500 to 749 lb	34.5	.3	48.5	.7	S	S	16.5
750 to 999 lb	S	S	48.1	.2	S	S	24.4
1,000 to 9,999 lb	30.0	6.3	30.6	7.8	30.1	9.1	15.7
10,000 to 49,999 lb	35.6	3.6	25.1	6.7	21.0	9.1	12.0
50,000 to 99,999 lb	S	S	S	S	S	S	37.8
100,000 lb or more	S	S	S	S	S	S	31.6
Parcel, U.S. Postal Service or courier	**9.9**	**–**	**8.8**	**–**	**8.7**	**–**	**5.3**
Less than 50 lb	8.2	3.1	8.0	3.4	8.8	3.4	5.7
50 to 99 lb	13.6	1.1	13.3	1.4	10.2	1.1	6.4
100 to 499 lb	21.8	2.4	13.4	2.7	15.9	3.4	10.1
500 to 749 lb	34.3	.6	42.6	1.6	34.1	.7	31.3
750 to 999 lb	38.3	.3	43.1	.4	33.7	.3	28.1
1,000 to 9,999 lb	S	S	S	S	S	S	32.6
10,000 to 49,999 lb	–	–	–	–	–	–	–
50,000 to 99,999 lb	–	–	–	–	–	–	–
100,000 lb or more	–	–	–	–	–	–	–
All other multiple modes	**31.4**	**–**	**25.8**	**–**	**22.8**	**–**	**10.1**
Less than 50 lb	S	S	48.9	–	S	S	22.4
50 to 99 lb	45.0	.3	S	S	47.1	–	26.4
100 to 499 lb	S	S	47.1	.4	45.4	.8	23.6
500 to 749 lb	S	S	S	S	S	S	30.5
750 to 999 lb	S	S	S	S	S	S	27.4
1,000 to 9,999 lb	30.0	11.4	30.7	9.8	30.1	10.0	15.0
10,000 to 49,999 lb	35.6	13.0	25.1	12.1	21.0	11.1	12.0
50,000 to 99,999 lb	S	S	S	S	S	S	37.8
100,000 lb or more	S	S	S	S	S	S	31.6

See footnotes at end of table.

Table B–4. **Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Size for Metropolitan Area of Origin: 1997**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

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	
Other and unknown modes	**36.7**	**–**	**S**	**S**	**48.3**	**–**	**S**
Less than 50 lb	21.4	4.1	18.7	.3	21.9	.3	S
50 to 99 lb	34.5	.9	26.4	.2	S	S	23.2
100 to 499 lb	24.5	2.0	21.8	1.0	32.5	.9	S
500 to 749 lb	32.8	.4	28.4	.3	23.8	–	26.0
750 to 999 lb	36.9	.5	34.3	.4	36.1	.3	S
1,000 to 9,999 lb	32.7	9.9	31.7	8.2	23.5	8.7	S
10,000 to 49,999 lb	39.5	8.5	37.5	11.3	32.1	14.0	38.7
50,000 to 99,999 lb	S	S	S	S	S	S	29.7
100,000 lb or more	S	S	S	S	S	S	S

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Table B–5. Measures of Reliability for Shipment Characteristics by Commodity Group for Metropolitan Area of Origin: 1997

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

SCTG codes	Commodity code group description	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	
	Total	**6.5**	**–**	**11.3**	**–**	**7.8**	**–**	**8.5**
01-05	Agricultural products and fish	25.0	.7	18.1	.4	43.8	2.1	48.1
06-09	Grains, alcohol, and tobacco products	9.0	.3	12.6	.6	22.5	1.0	12.4
10-14	Stone, Nonmetallic minerals, and metallic ores	22.7	–	22.9	4.6	22.7	1.2	18.3
15-20	Coal and petroleum products	41.4	2.0	34.8	5.1	30.1	3.6	S
21-24	Pharmaceutical and chemical products	11.9	.6	15.3	.3	28.4	1.6	10.6
25-30	Wood products, and textiles and leather	10.7	.4	15.2	.2	20.8	.5	17.6
31-34	Base metal and machinery	10.2	2.0	30.6	6.1	24.8	4.7	6.5
35-38	Electronics, motorized vehicles, and precision instruments	7.1	2.0	16.2	.8	10.4	2.1	23.9
39-43	Furniture and miscellaneous manufactured products	9.2	.8	9.3	.7	8.2	.8	9.7
–	Commodity unknown	17.5	–	33.4	–	31.6	–	43.6

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Table B–6. Measures of Reliability for Shipment Characteristics by Commodity Group and Mode of Transportation for Metropolitan Area of Origin: 1997

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

Commodity code group, 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							
All modes	**6.5**	**–**	**11.3**	**–**	**7.8**	**–**	**8.5**
Single modes	**8.1**	**2.6**	**12.5**	**3.3**	**9.5**	**2.5**	**15.3**
Truck[1]	6.9	1.9	13.2	3.4	11.0	3.3	15.9
Rail	17.0	1.7	22.5	.6	15.0	2.5	5.6
All other single modes	27.4	.3	46.9	1.7	S	S	5.1
Multiple modes	**16.8**	**1.9**	**21.3**	**.3**	**20.9**	**1.5**	**4.8**
Parcel, U.S. Postal Service or courier	9.9	.3	8.8	–	8.7	–	5.3
All other multiple modes	31.4	1.8	25.8	.3	22.8	1.5	10.1
Other and unknown modes	**36.7**	**2.8**	**S**	**S**	**48.3**	**2.2**	**S**
SCTG 01-05, AGRICULTURAL PRODUCTS AND FISH							
All modes	**25.0**	**–**	**18.1**	**–**	**43.8**	**–**	**48.1**
Single modes	**25.9**	**1.6**	**18.2**	**1.9**	**44.7**	**2.2**	**45.1**
Truck[1]	26.0	1.7	15.4	6.1	47.8	10.2	45.2
Rail	S	S	S	S	S	S	30.0
All other single modes	–	–	–	–	–	–	–
Multiple modes	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Parcel, U.S. Postal Service or courier	–	–	–	–	–	–	–
All other multiple modes	–	–	–	–	–	–	–
Other and unknown modes	**42.0**	**1.6**	**S**	**S**	**S**	**S**	**S**
SCTG 06-09, GRAINS, ALCOHOL, AND TOBACCO PRODUCTS							
All modes	**9.0**	**–**	**12.6**	**–**	**22.5**	**–**	**12.4**
Single modes	**9.1**	**.9**	**12.8**	**1.0**	**19.2**	**2.4**	**11.0**
Truck[1]	9.3	.9	13.2	1.7	21.6	4.4	10.9
Rail	42.8	.3	48.4	.7	48.6	4.8	28.6
All other single modes	S	S	S	S	S	S	31.6
Multiple modes	**S**	**S**	**S**	**S**	**S**	**S**	**26.5**
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	24.7
All other multiple modes	S	S	S	S	S	S	27.9
Other and unknown modes	**39.1**	**.6**	**45.9**	**1.0**	**S**	**S**	**S**
SCTG 10-14, STONE, NONMETALLIC MINERALS, AND METALLIC ORES							
All modes	**22.7**	**–**	**22.9**	**–**	**22.7**	**–**	**18.3**
Single modes	**21.5**	**6.8**	**25.0**	**7.2**	**24.7**	**4.1**	**27.3**
Truck[1]	21.5	6.7	25.0	7.2	24.9	4.1	27.3
Rail	S	S	S	S	S	S	36.6
All other single modes	–	–	–	–	–	–	–
Multiple modes	**S**	**S**	**S**	**S**	**S**	**S**	**S**
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
All other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	**S**	**S**	**S**	**S**	**S**	**S**	**S**
SCTG 15-20, COAL AND PETROLEUM PRODUCTS							
All modes	**41.4**	**–**	**34.8**	**–**	**30.1**	**–**	**S**
Single modes	**41.6**	**.4**	**34.9**	**.1**	**30.1**	**.3**	**42.1**
Truck[1]	46.7	6.1	40.6	6.3	32.1	7.0	40.2
Rail	34.5	1.1	48.5	1.1	43.6	6.7	33.3
All other single modes	S	S	48.9	5.6	S	S	29.3
Multiple modes	**45.2**	**.4**	**S**	**S**	**S**	**S**	**23.1**
Parcel, U.S. Postal Service or courier	S	S	47.5	–	S	S	22.3
All other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	**40.4**	**.2**	**S**	**S**	**S**	**S**	**S**

See footnotes at end of table.

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity Group and Mode of Transportation for Metropolitan Area of Origin: 1997**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

Commodity code group, 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	
SCTG 21-24, PHARMACEUTICAL AND CHEMICAL PRODUCTS							
All modes	**11.9**	**–**	**15.3**	**–**	**28.4**	**–**	**10.6**
Single modes	**11.9**	**1.6**	**16.0**	**2.9**	**28.7**	**1.3**	**9.3**
Truck[1]	11.9	2.0	16.2	3.4	28.4	3.7	8.9
Rail	47.8	1.6	48.4	2.4	S	S	25.8
All other single modes	S	S	30.2	–	36.8	–	16.2
Multiple modes	**15.7**	**1.1**	**21.7**	**.4**	**23.3**	**1.0**	**12.5**
Parcel, U.S. Postal Service or courier	15.6	1.0	24.5	.3	28.9	.7	12.5
All other multiple modes	35.1	–	28.8	.2	34.6	.8	24.2
Other and unknown modes	**32.0**	**1.0**	**S**	**S**	**S**	**S**	**24.9**
SCTG 25-30, WOOD PRODUCTS, AND TEXTILES AND LEATHER							
All modes	**10.7**	**–**	**15.2**	**–**	**20.8**	**–**	**17.6**
Single modes	**12.5**	**4.7**	**16.0**	**1.5**	**22.0**	**2.4**	**22.9**
Truck[1]	12.3	4.7	15.9	1.4	20.3	2.3	23.1
Rail	S	S	S	S	S	S	29.8
All other single modes	36.1	–	37.2	–	43.2	–	18.4
Multiple modes	**27.9**	**2.9**	**30.1**	**.5**	**28.5**	**1.3**	**14.8**
Parcel, U.S. Postal Service or courier	28.0	2.9	30.4	.5	30.7	1.3	14.8
All other multiple modes	S	S	S	S	S	S	29.8
Other and unknown modes	**47.2**	**2.2**	**29.8**	**1.2**	**33.1**	**1.4**	**S**
SCTG 31-34, BASE METAL AND MACHINERY							
All modes	**10.2**	**–**	**30.6**	**–**	**24.8**	**–**	**6.5**
Single modes	**11.8**	**1.6**	**30.9**	**.4**	**25.8**	**1.3**	**12.3**
Truck[1]	12.5	2.2	31.9	1.9	29.2	3.9	13.4
Rail	27.0	1.0	25.3	1.6	22.6	3.4	38.2
All other single modes	32.4	.3	S	S	S	S	9.8
Multiple modes	**12.4**	**1.3**	**36.4**	**.2**	**38.5**	**.9**	**11.6**
Parcel, U.S. Postal Service or courier	10.7	1.1	21.1	–	22.0	.1	11.6
All other multiple modes	S	S	S	S	S	S	S
Other and unknown modes	**27.8**	**.7**	**19.3**	**.2**	**35.8**	**1.1**	**30.3**
SCTG 35-38, ELECTRONICS, MOTORIZED VEHICLES, AND PRECISION INSTRUMENTS							
All modes	**7.1**	**–**	**16.2**	**–**	**10.4**	**–**	**23.9**
Single modes	**9.1**	**4.0**	**18.8**	**2.8**	**14.9**	**5.3**	**46.4**
Truck[1]	9.8	2.9	13.8	3.8	11.8	3.7	46.4
Rail	17.5	3.9	36.3	3.9	20.9	5.0	7.1
All other single modes	28.3	.1	S	S	S	S	6.6
Multiple modes	**25.3**	**3.5**	**30.5**	**2.1**	**27.5**	**3.9**	**5.1**
Parcel, U.S. Postal Service or courier	20.8	.6	22.3	–	28.5	–	7.5
All other multiple modes	32.2	3.3	31.8	2.0	28.1	3.9	11.1
Other and unknown modes	**44.6**	**4.7**	**38.6**	**2.5**	**S**	**S**	**S**
SCTG 39-43, FURNITURE AND MISCELLANEOUS MANUFACTURED PRODUCTS							
All modes	**9.2**	**–**	**9.3**	**–**	**8.2**	**–**	**9.7**
Single modes	**8.6**	**4.3**	**8.5**	**3.1**	**9.1**	**2.7**	**9.9**
Truck[1]	7.9	3.9	9.0	4.2	9.9	7.2	10.8
Rail	45.8	.9	23.0	4.3	25.1	7.3	18.6
All other single modes	S	S	48.5	–	S	S	11.5
Multiple modes	**17.9**	**2.1**	**30.8**	**.6**	**27.7**	**2.8**	**11.6**
Parcel, U.S. Postal Service or courier	19.4	2.1	18.3	–	20.2	.3	11.6
All other multiple modes	30.3	.3	36.3	.6	30.1	2.7	23.9
Other and unknown modes	**S**	**S**	**49.7**	**3.3**	**43.5**	**1.3**	**S**

See footnotes at end of table.

Table B–6. **Measures of Reliability for Shipment Characteristics by Commodity Group and Mode of Transportation for Metropolitan Area of Origin: 1997**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

Commodity code group, 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							
All modes	**17.5**	**–**	**33.4**	**–**	**31.6**	**–**	**43.6**
Single modes	**19.6**	**10.2**	**32.9**	**9.4**	**33.7**	**11.7**	**S**
Truck[1]	19.6	10.2	32.9	9.4	33.7	11.7	S
Rail	–	–	–	–	–	–	–
All other single modes	–	–	–	–	–	–	–
Multiple modes	**S**	**S**	**S**	**S**	**S**	**S**	**S**
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
All other multiple modes	S	S	S	S	S	S	29.9
Other and unknown modes	**S**	**S**	**S**	**S**	**S**	**S**	**33.0**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Table B–7. Measures of Reliability for Outbound Shipment Characteristics by Destination for Metropolitan Area: 1997

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

State, metropolitan area, and remainder of state 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	**6.5**	**–**	**11.3**	**–**	**7.8**	**–**
Alabama	**29.1**	**.1**	**32.3**	**.1**	**32.0**	**.6**
Alaska	**46.2**	**–**	**S**	**S**	**S**	**S**
Arizona	**24.6**	**.3**	**20.9**	**–**	**20.4**	**.4**
Phoenix-Mesa, AZ MSA	26.1	.1	21.5	–	21.1	.2
Remainder of Arizona	S	S	39.3	–	39.1	.2
Arkansas	**36.8**	**–**	**23.8**	**–**	**24.8**	**.2**
California	**23.6**	**.5**	**22.2**	**–**	**22.7**	**1.3**
Los Angeles-Riverside-Orange County, CA CMSA	26.4	.4	17.9	–	17.3	.8
Sacramento-Yolo, CA CMSA	S	S	S	S	S	S
San Diego, CA MSA	43.5	–	41.7	–	43.1	–
San Francisco-Oakland-San Jose, CA CMSA	25.5	.1	S	S	S	S
Remainder of California	37.4	–	35.4	–	34.8	.2
Colorado	**S**	**S**	**43.7**	**–**	**43.3**	**.3**
Denver-Boulder-Greeley, CO CMSA	S	S	47.3	–	47.1	.3
Remainder of Colorado	43.3	–	48.6	–	S	S
Connecticut	**28.3**	**–**	**28.8**	**–**	**28.9**	**–**
Hartford, CT NECMA	33.1	–	33.2	–	32.7	–
Remainder of Connecticut	41.5	–	39.1	–	40.2	–
Delaware	**28.2**	**–**	**23.3**	**–**	**22.6**	**–**
District of Columbia	**47.2**	**–**	**S**	**S**	**S**	**S**
Washington, DC-MD-VA-WV PMSA (DC part)	47.2	–	S	S	S	S
Florida	**23.2**	**.5**	**18.1**	**–**	**18.3**	**.5**
Jacksonville, FL MSA	39.7	.2	31.1	–	29.6	.2
Miami-Fort Lauderdale, FL CMSA	33.3	.3	33.1	–	32.5	.3
Orlando, FL MSA	34.6	–	22.7	–	23.5	–
Tampa-St Petersburg-Clearwater, FL MSA	23.1	.1	20.8	–	20.7	.1
West Palm Beach-Boca Raton, FL MSA	31.0	–	S	S	S	S
Remainder of Florida	23.5	–	20.2	–	20.7	–
Georgia	**20.4**	**.4**	**17.9**	**.1**	**20.7**	**.6**
Atlanta, GA MSA	21.6	.4	14.5	–	14.3	.2
Remainder of Georgia	18.7	–	44.9	–	48.5	.5
Hawaii	**S**	**S**	**S**	**S**	**S**	**S**
Idaho	**S**	**S**	**S**	**S**	**S**	**S**
Illinois	**18.6**	**.7**	**32.9**	**.4**	**29.6**	**.9**
Chicago-Gary-Kenosha, IL-IN-WI CMSA (IL part)	22.3	.6	44.2	.4	43.6	1.0
St Louis, MO-IL MSA (IL part)	33.7	–	36.6	–	36.2	.1
Remainder of Illinois	25.3	.3	15.0	–	14.5	.2
Indiana	**12.0**	**.2**	**20.6**	**.3**	**21.6**	**.6**
Gary, IN PMSA	42.4	.1	34.5	.2	35.9	.5
Indianapolis, IN MSA	24.9	.2	33.4	–	32.5	.1
Remainder of Indiana	7.1	.1	12.7	.1	12.4	.2
Iowa	**28.4**	**.1**	**32.7**	**–**	**35.3**	**.3**
Kansas	**20.6**	**–**	**26.1**	**–**	**25.3**	**.1**
Kansas City, MO-KS MSA (KS part)	21.7	–	43.6	–	44.4	.1
Remainder of Kansas	43.1	–	29.2	–	29.2	.1
Kentucky	**12.8**	**.2**	**20.6**	**.2**	**22.6**	**.5**
Louisville, KY-IN MSA (KY part)	16.2	.2	12.8	–	11.9	.1
Remainder of Kentucky	13.7	–	33.0	.1	36.2	.4
Louisiana	**30.0**	**.2**	**20.2**	**–**	**19.5**	**.2**
New Orleans, LA MSA	S	S	S	S	S	S
Remainder of Louisiana	33.6	.2	21.3	–	20.4	.2
Maine	**46.7**	**–**	**33.6**	**–**	**35.3**	**–**
Maryland	**15.8**	**.2**	**15.8**	**–**	**15.3**	**.2**
Baltimore, MD PMSA	22.6	.2	16.3	–	17.7	.1
Remainder of Maryland	18.9	–	34.4	–	33.0	.1
Massachusetts	**30.1**	**.3**	**19.6**	**–**	**22.9**	**.1**
Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA (MA part)	33.9	.3	21.6	–	26.1	.1
Remainder of Massachusetts	S	S	36.9	–	41.5	–
Michigan	**7.7**	**1.6**	**12.2**	**2.0**	**12.9**	**1.8**
Detroit-Ann Arbor-Flint, MI CMSA	8.4	1.8	13.6	2.8	18.3	2.1
Grand Rapids-Muskegon-Holland, MI MSA	11.8	.1	10.5	.1	10.3	.1
Remainder of Michigan	9.6	.4	13.5	1.1	11.1	.3
Minnesota	**18.6**	**.2**	**40.0**	**–**	**39.9**	**.4**
Minneapolis-St Paul, MN-WI MSA (MN part)	23.6	.2	41.2	–	42.0	.3
Remainder of Minnesota	31.9	–	41.1	–	39.6	–
Mississippi	**29.1**	**–**	**29.9**	**–**	**31.4**	**.1**
Missouri	**14.8**	**.6**	**8.9**	**.1**	**8.4**	**.5**
Kansas City, MO-KS MSA (MO part)	25.0	.5	13.6	–	13.3	.3
St Louis, MO-IL MSA (MO part)	19.9	.3	17.8	–	18.1	.4
Remainder of Missouri	42.4	.2	30.2	–	29.1	.1
Montana	**S**	**S**	**S**	**S**	**S**	**S**
Nebraska	**S**	**S**	**39.4**	**–**	**37.8**	**.1**
Nevada	**45.3**	**–**	**33.9**	**–**	**34.8**	**.1**
Las Vegas, NV-AZ MSA (NV part)	S	S	S	S	S	S
Remainder of Nevada	S	S	48.4	–	S	S

See footnotes at end of table.

Table B–7. **Measures of Reliability for Outbound Shipment Characteristics by Destination for Metropolitan Area: 1997**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

State, metropolitan area, and remainder of state 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
New Hampshire	**20.8**	**–**	**39.4**	**–**	**35.0**	**–**
New Jersey	**24.9**	**.4**	**15.2**	**–**	**15.3**	**.3**
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NJ part)	29.3	.4	17.3	–	17.5	.2
Philadelphia, PA-NJ PMSA (NJ part)	43.2	.1	37.2	–	37.4	.2
Remainder of New Jersey	S	S	S	S	S	S
New Mexico	**44.0**	**–**	**38.7**	**–**	**38.7**	**–**
New York	**15.7**	**.3**	**20.8**	**.1**	**20.5**	**.2**
Buffalo-Niagara Falls, NY MSA	24.2	.1	35.3	.1	S	S
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NY part)	21.0	–	20.9	–	20.3	–
Rochester, NY MSA	45.7	.1	30.8	–	28.4	–
Remainder of New York	35.5	.1	18.9	–	24.6	–
North Carolina	**24.2**	**.3**	**35.4**	**.2**	**37.5**	**1.3**
Charlotte-Gastonia-Rock Hill, NC-SC MSA (NC part)	32.0	–	35.1	–	33.1	.1
Greensboro-Winston-Salem-High Point, NC MSA	33.7	.2	33.9	–	31.1	.1
Raleigh-Durham-Chapel Hill, NC MSA	18.6	–	30.8	–	31.1	–
Remainder of North Carolina	19.5	–	48.6	.2	S	S
North Dakota	**42.1**	**–**	**34.7**	**–**	**35.6**	**–**
Ohio	**19.6**	**.8**	**19.8**	**.9**	**21.3**	**1.2**
Cincinnati-Hamilton, OH-KY-IN CMSA (OH part)	22.3	.1	31.6	–	32.0	.1
Cleveland-Akron, OH CMSA	6.2	.2	15.1	.3	12.7	.3
Columbus, OH MSA	15.5	–	35.5	.1	31.1	.1
Dayton-Springfield, OH MSA	19.8	.2	9.3	–	9.3	–
Remainder of Ohio	33.6	.9	28.7	1.0	33.5	1.2
Oklahoma	**29.9**	**.2**	**S**	**S**	**S**	**S**
Oklahoma City, OK MSA	29.2	–	21.9	–	22.2	–
Remainder of Oklahoma	48.8	.1	S	S	S	S
Oregon	**22.3**	**.1**	**40.9**	**–**	**41.1**	**.9**
Portland-Salem, OR-WA CMSA (OR part)	27.3	.1	44.3	–	44.3	.9
Remainder of Oregon	S	S	S	S	S	S
Pennsylvania	**19.3**	**.3**	**23.0**	**.2**	**27.7**	**.6**
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA (PA part)	34.8	.3	18.8	–	18.7	.1
Pittsburgh, PA MSA	21.4	–	29.7	.1	29.1	.2
Remainder of Pennsylvania	26.7	.2	48.6	.2	S	S
Rhode Island	**49.2**	**–**	**S**	**S**	**S**	**S**
South Carolina	**23.0**	**.1**	**19.8**	**–**	**20.8**	**.3**
South Dakota	**S**	**S**	**S**	**S**	**S**	**S**
Tennessee	**14.5**	**.2**	**18.1**	**–**	**17.6**	**.2**
Memphis TN-AR-MS MSA (TN part)	35.1	–	22.1	–	22.7	–
Nashville, TN MSA	15.9	.1	18.0	–	17.6	.1
Remainder of Tennessee	27.2	.1	27.1	–	27.5	.2
Texas	**18.6**	**.8**	**12.1**	**.1**	**10.2**	**1.0**
Austin-San Marcos, TX MSA	47.4	–	S	S	S	S
Dallas-Fort Worth, TX CMSA	34.0	.2	15.9	–	16.2	.2
Houston-Galveston-Brazoria, TX CMSA	27.9	.4	34.9	.1	31.1	.6
San Antonio, TX MSA	36.9	–	35.2	–	35.2	–
Remainder of Texas	13.2	.3	9.3	–	9.0	.6
Utah	**S**	**S**	**41.4**	**–**	**40.8**	**.5**
Salt Lake City-Ogden, UT MSA	S	S	43.6	–	42.6	.3
Remainder of Utah	S	S	S	S	S	S
Vermont	**S**	**S**	**S**	**S**	**S**	**S**
Virginia	**10.9**	**.1**	**17.8**	**–**	**18.2**	**.4**
Norfolk-Virginia Beach-Newport News, VA-NC MSA (VA part)	18.1	.1	20.4	–	20.9	.4
Washington, DC-MD-VA-WV PMSA (VA part)	30.7	–	40.1	–	40.2	–
Remainder of Virginia	27.6	–	29.2	–	31.2	–
Washington	**26.0**	**.2**	**25.5**	**–**	**25.5**	**.6**
Seattle-Tacoma-Bremerton, WA CMSA	34.5	.2	34.8	–	34.5	.7
Remainder of Washington	41.9	.1	35.3	–	36.4	.2
West Virginia	**29.5**	**.1**	**S**	**S**	**46.4**	**.3**
Wisconsin	**16.6**	**.2**	**21.4**	**.2**	**19.8**	**.5**
Milwaukee-Racine, WI CMSA	26.4	.2	35.3	.2	34.9	.5
Remainder of Wisconsin	22.5	.1	9.8	–	10.9	.1
Wyoming	**S**	**S**	**S**	**S**	**S**	**S**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Table B–8. Measures of Reliability for Inbound Shipment Characteristics by Origin for Metropolitan Area: 1997

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

State, metropolitan area, remainder of state	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	**2.4**	**–**	**8.2**	**–**	**16.9**	**–**
Alabama	**19.3**	**.2**	**22.1**	**.1**	**21.3**	**.4**
Alaska	**S**	**S**	**S**	**S**	**S**	**S**
Arizona	**26.0**	**–**	**S**	**S**	**S**	**S**
Phoenix-Mesa, AZ MSA	33.5	–	35.8	–	35.9	–
Remainder of Arizona	31.6	–	S	S	S	S
Arkansas	**11.8**	**–**	**15.2**	**–**	**14.8**	**.1**
California	**15.0**	**.5**	**10.8**	**–**	**11.3**	**1.0**
Los Angeles-Riverside-Orange County, CA CMSA	23.0	.5	16.1	–	16.2	.5
Sacramento-Yolo, CA CMSA	46.3	–	23.3	–	23.3	–
San Diego, CA MSA	47.7	–	S	S	S	S
San Francisco-Oakland-San Jose, CA CMSA	25.1	.1	36.4	–	37.2	.3
Remainder of California	17.4	–	20.6	–	21.5	.6
Colorado	**38.2**	**.2**	**S**	**S**	**S**	**S**
Denver-Boulder-Greeley, CO CMSA	45.8	.2	S	S	S	S
Remainder of Colorado	20.2	–	44.7	–	43.6	–
Connecticut	**15.4**	**–**	**10.0**	**–**	**10.0**	**–**
Hartford, CT NECMA	33.0	–	28.9	–	29.6	–
Remainder of Connecticut	21.3	–	15.5	–	16.6	–
Delaware	**42.6**	**–**	**38.0**	**–**	**37.5**	**–**
District of Columbia	**S**	**S**	**S**	**S**	**S**	**S**
Washington, DC-MD-VA-WV PMSA (DC part)	S	S	S	S	S	S
Florida	**12.8**	**–**	**22.3**	**–**	**23.5**	**.5**
Jacksonville, FL MSA	S	S	34.1	–	33.9	–
Miami-Fort Lauderdale, FL CMSA	37.6	–	S	S	S	S
Orlando, FL MSA	22.4	–	S	S	S	S
Tampa-St Petersburg-Clearwater, FL MSA	20.1	–	41.8	–	43.0	–
West Palm Beach-Boca Raton, FL MSA	S	S	S	S	S	S
Remainder of Florida	25.0	–	23.0	–	24.1	–
Georgia	**13.3**	**.2**	**13.9**	**.1**	**13.4**	**.5**
Atlanta, GA MSA	21.8	.1	31.2	–	31.4	.3
Remainder of Georgia	19.7	.1	12.2	–	12.2	.4
Hawaii	**S**	**S**	**S**	**S**	**S**	**S**
Idaho	**S**	**S**	**28.6**	**–**	**27.6**	**.2**
Illinois	**6.2**	**.3**	**7.0**	**.2**	**6.7**	**.5**
Chicago-Gary-Kenosha, IL-IN-WI CMSA (IL part)	8.6	.3	11.0	.1	10.0	.3
St Louis, MO-IL MSA (IL part)	25.1	–	32.9	–	32.8	–
Remainder of Illinois	7.2	.1	11.3	.1	10.3	.3
Indiana	**15.0**	**1.0**	**13.6**	**.3**	**13.0**	**.7**
Gary, IN PMSA	15.5	–	16.8	.1	19.8	.2
Indianapolis, IN MSA	16.7	.2	19.7	–	21.7	.1
Remainder of Indiana	19.9	1.0	16.6	.2	15.3	.5
Iowa	**12.0**	**.1**	**17.2**	**–**	**17.5**	**.3**
Kansas	**8.5**	**–**	**16.6**	**–**	**21.1**	**.2**
Kansas City, MO-KS MSA (KS part)	18.7	–	18.2	–	18.6	–
Remainder of Kansas	14.9	–	24.6	–	29.3	.2
Kentucky	**19.9**	**.5**	**29.5**	**.4**	**33.2**	**1.0**
Louisville, KY-IN MSA (KY part)	38.7	.6	46.2	.1	45.7	.2
Remainder of Kentucky	9.4	.1	37.1	.4	40.8	1.0
Louisiana	**17.2**	**–**	**32.9**	**.2**	**32.4**	**.3**
New Orleans, LA MSA	45.5	–	36.8	–	37.5	–
Remainder of Louisiana	20.5	.1	34.5	.1	33.9	.4
Maine	**20.6**	**–**	**34.0**	**–**	**49.5**	**–**
Maryland	**36.0**	**.1**	**21.1**	**–**	**23.3**	**–**
Baltimore, MD PMSA	S	S	29.2	–	31.3	–
Remainder of Maryland	35.9	–	27.9	–	27.4	–
Massachusetts	**13.6**	**–**	**40.1**	**–**	**37.3**	**–**
Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA (MA part)	14.1	–	43.8	–	40.0	–
Remainder of Massachusetts	20.1	–	32.4	–	33.9	–
Michigan	**6.0**	**2.0**	**10.8**	**2.8**	**13.5**	**2.3**
Detroit-Ann Arbor-Flint, MI CMSA	8.4	2.4	13.6	3.8	18.3	1.4
Grand Rapids-Muskegon-Holland, MI MSA	10.4	.3	9.4	.2	11.2	.3
Remainder of Michigan	9.6	.6	18.8	1.9	28.2	2.2
Minnesota	**10.3**	**–**	**S**	**S**	**S**	**S**
Minneapolis-St Paul, MN-WI MSA (MN part)	10.7	–	41.6	–	41.0	.2
Remainder of Minnesota	19.4	–	S	S	S	S
Mississippi	**21.8**	**.1**	**16.6**	**–**	**17.7**	**.2**
Missouri	**18.1**	**.2**	**11.0**	**–**	**10.8**	**.2**
Kansas City, MO-KS MSA (MO part)	35.2	.1	25.5	–	25.4	–
St Louis, MO-IL MSA (MO part)	31.3	.2	29.2	–	30.4	.1
Remainder of Missouri	9.7	–	10.1	–	9.7	–
Montana	**39.2**	**–**	**S**	**S**	**S**	**S**
Nebraska	**16.5**	**–**	**17.3**	**–**	**16.7**	**.1**
Nevada	**36.9**	**–**	**36.0**	**–**	**35.2**	**–**
Las Vegas, NV-AZ MSA (NV part)	48.7	–	S	S	S	S
Remainder of Nevada	39.1	–	31.3	–	31.8	–

See footnotes at end of table.

Table B–8. **Measures of Reliability for Inbound Shipment Characteristics by Origin for Metropolitan Area: 1997**—Con.

[For explanation of terms and meaning of abbreviations and symbols, see introductory text]

State, metropolitan area, remainder of state	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
New Hampshire	**49.0**	**.2**	**30.4**	**–**	**31.8**	**–**
New Jersey	**33.3**	**.6**	**26.9**	**.1**	**29.1**	**.2**
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NJ part)	37.7	.5	25.8	–	28.7	.2
Philadelphia, PA-NJ PMSA (NJ part)	S	S	38.9	–	38.8	–
Remainder of New Jersey	S	S	44.1	–	44.5	–
New Mexico	**27.4**	**–**	**39.3**	**–**	**39.5**	**–**
New York	**14.0**	**.3**	**14.1**	**–**	**19.7**	**.2**
Buffalo-Niagara Falls, NY MSA	17.5	–	23.9	–	19.4	–
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA (NY part)	14.9	–	42.7	–	44.5	.2
Rochester, NY MSA	22.8	.2	21.0	–	32.1	–
Remainder of New York	22.7	–	23.7	–	23.1	–
North Carolina	**10.0**	**.1**	**15.5**	**–**	**15.1**	**.2**
Charlotte-Gastonia-Rock Hill, NC-SC MSA (NC part)	45.6	.1	31.6	–	31.3	–
Greensboro-Winston-Salem-High Point, NC MSA	12.7	–	23.5	–	23.0	–
Raleigh-Durham-Chapel Hill, NC MSA	23.9	–	S	S	S	S
Remainder of North Carolina	7.5	–	19.1	–	18.6	.2
North Dakota	**31.0**	**–**	**43.4**	**–**	**44.8**	**.1**
Ohio	**10.0**	**1.1**	**10.6**	**.8**	**9.7**	**1.2**
Cincinnati-Hamilton, OH-KY-IN CMSA (OH part)	12.1	.1	20.8	.2	20.8	.4
Cleveland-Akron, OH CMSA	13.1	.2	14.1	.1	14.8	.1
Columbus, OH MSA	11.2	–	17.8	–	18.0	–
Dayton-Springfield, OH MSA	37.6	.6	17.0	–	17.8	–
Remainder of Ohio	6.5	.4	16.6	.7	18.2	.9
Oklahoma	**17.7**	**–**	**23.5**	**–**	**23.7**	**.2**
Oklahoma City, OK MSA	38.9	–	39.8	–	39.4	–
Remainder of Oklahoma	11.5	–	24.8	–	25.2	.2
Oregon	**11.1**	**–**	**30.5**	**–**	**31.7**	**.5**
Portland-Salem, OR-WA CMSA (OR part)	21.6	–	S	S	S	S
Remainder of Oregon	15.7	–	13.9	–	14.1	.1
Pennsylvania	**12.8**	**.2**	**22.7**	**.3**	**23.8**	**.9**
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA (PA part)	14.6	–	S	S	49.7	.2
Pittsburgh, PA MSA	19.7	.1	38.5	.2	43.6	.6
Remainder of Pennsylvania	12.2	.1	29.4	.3	29.1	.5
Rhode Island	**27.1**	**–**	**25.3**	**–**	**23.9**	**–**
South Carolina	**13.7**	**.1**	**18.8**	**–**	**19.9**	**.2**
South Dakota	**S**	**S**	**12.8**	**–**	**14.9**	**–**
Tennessee	**10.3**	**.2**	**14.0**	**–**	**13.8**	**.4**
Memphis TN-AR-MS MSA (TN part)	16.4	–	23.8	–	23.8	–
Nashville, TN MSA	24.2	.1	21.9	–	22.9	–
Remainder of Tennessee	11.8	.1	16.7	–	16.6	.3
Texas	**S**	**S**	**S**	**S**	**S**	**S**
Austin-San Marcos, TX MSA	41.3	–	S	S	S	S
Dallas-Fort Worth, TX CMSA	S	S	25.7	–	25.7	.1
Houston-Galveston-Brazoria, TX CMSA	S	S	S	S	S	S
San Antonio, TX MSA	49.7	–	26.1	–	25.9	–
Remainder of Texas	17.1	.1	18.7	–	19.9	.3
Utah	**36.8**	**–**	**37.9**	**–**	**38.2**	**–**
Salt Lake City-Ogden, UT MSA	38.5	–	45.8	–	46.3	–
Remainder of Utah	28.3	–	S	S	S	S
Vermont	**47.0**	**–**	**27.3**	**–**	**26.9**	**–**
Virginia	**10.4**	**–**	**22.9**	**.1**	**21.5**	**.2**
Norfolk-Virginia Beach-Newport News, VA-NC MSA (VA part)	16.7	–	39.7	–	37.8	–
Washington, DC-MD-VA-WV PMSA (VA part)	28.3	–	40.0	–	39.9	–
Remainder of Virginia	12.4	–	25.7	.1	24.9	.2
Washington	**24.9**	**–**	**32.1**	**–**	**32.6**	**.5**
Seattle-Tacoma-Bremerton, WA CMSA	30.2	–	37.7	–	37.4	.2
Remainder of Washington	40.8	–	44.1	–	44.6	.5
West Virginia	**28.4**	**.1**	**41.2**	**.5**	**42.9**	**.6**
Wisconsin	**25.2**	**.6**	**9.4**	**.1**	**10.9**	**.4**
Milwaukee-Racine, WI CMSA	45.8	.5	27.0	–	26.4	.2
Remainder of Wisconsin	8.2	.1	12.1	.1	15.0	.3
Wyoming	**37.4**	**–**	**41.0**	**.4**	**40.7**	**2.2**

– 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 because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

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

Appendix C.
Sample Design, Data Collection, and Estimation

INTRODUCTION

The primary goal for the 1997 Commodity Flow Survey (CFS) is to estimate shipping volumes (value, tons, and ton-miles) by commodity and mode of transportation at varying levels of geographic detail. A detailed description of the sample design for the 1997 CFS is provided below.

SAMPLE DESIGN

The sample for the 1997 CFS is selected using a stratified three-stage design in which the first-stage sampling units are establishments, the second-stage sampling units are groups of four 1-week periods (reporting weeks) within the survey year, and the third-stage sampling units are shipments.

First Stage

To create the first-stage sampling frame, we extracted a subset of establishment records from the 1995 Standard Statistical Establishment List (SSEL). The SSEL is a database, maintained by the Bureau of the Census, that contains a record for each establishment with employees. (An establishment is a single physical location where business transactions take place.) Establishments having nonzero payroll in 1994 and classified in the mining, manufacturing, wholesale, or selected retail industries, as defined by the 1987 Standard Industrial Classification (SIC) Manual, are included on the sampling frame. Auxiliary establishments (e.g. warehouses and central administrative offices) with shipping activity are also included. Auxiliary establishments are establishments that are primarily involved in rendering support services for other establishments within the same company, instead of for the public, government, or other business firms. All other establishments contained on the sampling frame are referred to as nonauxiliary establishments. For each establishment we extracted sales, payroll, number of employees, name and address information, as well as a primary identifier. We also computed a measure of size for each establishment. The measure of size for a particular establishment is designed to approximate the establishment's total value of shipments for 1994.

To reduce the amount of sampling variability and because estimates are desired for each commodity, we used a stratified design with a certainty component for each three-digit SIC. To accomplish this, each establishment on the sampling frame is classified into a three-digit SIC grouping. For each group of establishments, a boundary (or cutoff) that divides the certainty establishments from the noncertainty establishments is determined using the Lavallee-Hidiroglou algorithm. If an establishment's measure of size is greater than the cutoff, the establishment is selected "with certainty". Establishments selected "with certainty" were assured of being selected and represented only themselves (i.e., have a selection probability of one and a sampling weight of one). No certainty cutoffs are set for auxiliary establishments because they only make up a small portion of the estimated total value of shipments for all establishments on the sampling frame.

Establishments not selected with certainty makeup the noncertainty universe. We stratify the noncertainty universe by SIC recode, National Transportation Analysis Region (NTAR), and a flag used to differentiate auxiliary establishments from nonauxiliary establishments. Each SIC recode is constructed from a group of related three-digit SIC codes. The NTARs, developed by the Department of Transportation as combinations of Bureau of Economic Analysis (BEA) Areas, collectively provide a mutually exclusive and exhaustive coverage of the United States. Finally, the auxiliary stratification came about because establishments with different types of operation may have different shipping practices. We refer to a particular SIC recode-NTAR-auxiliary flag combination as a primary stratum.

We further stratify the noncertainty establishments within each primary stratum using the measure of size previously described. We refer to these measure-of-size strata as substrata of the primary strata. The measure of size stratification increases the efficiency of the sample design. The Dalenius-Hodges cumulative rule is used to set the substratum boundaries. We then use Neyman allocation to determine the sample size required within each substratum to meet a coefficient of variation constraint on the primary stratum total measure of size. Within each substratum, a simple random sample of establishments is selected without replacement.

To arrive at the final sample size, we allocated additional establishments to some of the strata so that the probability of selecting any establishment is no less than 1 in 100. In total, the first-stage sample comprises 102,739 establishments.

Second Stage

The frame for the second stage of sampling consists of 52 one-week reporting periods (reporting weeks) during the interval from December 29, 1996, to December 26,

1997. Each establishment selected for the 1997 CFS was systematically assigned to report for a group of four reporting weeks throughout the survey year. The four reporting weeks in a given group are separated by 12 weeks. For example, an establishment might be requested to report data for the 5th, 18th, 31st, and 44th weeks of the survey year.

Third Stage

For each of the four reporting weeks in which an establishment is asked to report, we request the respondent to construct a sampling frame that consists of all shipments made by their establishment in each particular reporting week. For any particular reporting week, if an establishment makes 40 or fewer shipments during that week, we ask the respondent to provide information about all of their establishment's shipments from that week, i.e., no sampling is required. For establishments making more than 40 shipments in a given reporting week, we ask the respondent to select a systematic sample of these shipments and to provide us with information only about the selected shipments. The size of a particular respondent's sample for a given reporting week should be between 20 and 40 shipments, depending on the total number of shipments the establishment made during that reporting week.

DATA COLLECTION

Each establishment selected into the CFS sample is mailed a questionnaire for each of its four reporting weeks. For a given establishment, we request the respondent to provide the following information about their establishment's shipments: domestic destination or port of exit, commodity, value, weight, mode(s) of transportation, the date on which the shipment was made, and an indication of whether the shipment was an export, hazardous material, or containerized. For shipments that include more than one commodity, respondents are instructed to report the commodity that makes up the greatest percentage of the shipment's weight. For exports, we also ask the respondent to provide the mode of export and the foreign destination city and country.

We used two versions of the questionnaire to collect data from the sampled establishments—the CFS-1000 and the CFS-2000. Each establishment received the CFS-1000 in each of its first three reporting weeks. However, for the fourth reporting week, a subsample of approximately 25,000 establishments received the CFS-2000, while the remaining establishments received the CFS-1000. The CFS-2000 requests the respondent to provide additional information about their establishment's access to on-site and off-site shipping facilities, as well as transportation equipment. See Appendix E for a copy of each questionnaire.

ESTIMATION

Each shipment has associated with it a single tabulation weight, that is used in computing all estimates to which the shipment contributes. The tabulation weight is a product of seven different weights. A description of each weight follows.

CFS respondents provide data for a sample of shipments made by their respective establishments in the survey year. For each establishment, we produce an estimate of that establishment's total value of shipments for the entire survey year. To do this, we use four different weights, the shipment weight, the shipment nonresponse weight, the quarter weight, and the quarter nonresponse weight.

Like establishments, we identify shipments as either certainty or noncertainty. (See the Nonsampling Error section in Appendix B for a description of how certainty shipments are identified.) For noncertainty shipments, the shipment weight is defined as the ratio of the total number of noncertainty shipments (as reported by the respondent) made by an establishment in a reporting week to the number of sampled noncertainty shipments for the same week. This weight uses the data from the sampled shipments to represent all the establishment's shipments made in the reporting week. However, some respondents fail to provide sufficient information about a sampled shipment. For example, a respondent may not be able to provide value, weight, or a destination ZIP Code for some of the sampled shipments. If these data items cannot be imputed, then these shipments would not contribute to tabulations and are deemed "unusable." (A usable shipment is one that has valid entries for value, weight, and origin and destination ZIP Codes.) To account for these "unusable" shipments, we apply the shipment nonresponse weight. For noncertainty shipments from a particular establishment's reporting week, this weight is equal to the ratio of the number of sampled shipments for the reporting week to the number of "usable" shipments for the same week. The shipment weight and shipment nonresponse weight for certainty shipments from a particular establishment's reporting week are both equal to one.

The quarter weight inflates an establishment's estimate for a particular reporting week to an estimate for the corresponding quarter. For noncertainty shipments, the quarter weight is equal to 13. The quarter weight for most certainty shipments is also equal to 13. However, if a respondent is able to provide information about all large (or certainty) shipments made in the quarter containing the reporting week, then the quarter weight for each of these shipments would be one. For each establishment, the quarterly estimates are added to produce an estimate of the establishment's value of shipments for the entire survey year. Whenever an establishment does not provide the Census Bureau with a response for each of its four reporting weeks, we compute a quarter nonresponse weight. The quarter nonresponse weight for a particular establishment is defined as the ratio of the number of

quarters for which the establishment was in business in the survey year to the total number of quarters (reporting weeks) for which we received usable shipment data from the establishment.

Using these four component weights, we compute an estimate of each establishment's value of shipments for the entire survey year. We then multiply this estimate by a weight that adjusts the estimate using value of shipments and sales data obtained from other Census Bureau surveys and preliminary results of the 1997 Economic Census. This weight, called the establishment-level adjustment weight, attempts to correct for any sampling or nonsampling errors that occur during the sampling of shipments by the respondent.

The adjusted value of shipments estimate for an establishment is then weighted by the establishment weight. This weight is equal to the inverse of the establishment's probability of being selected into the sample.

A final adjustment weight, called the SIC-level adjustment weight, uses preliminary results of the 1997 Economic Census to account for establishments from which we did not receive a response (including establishments from which we did not receive any usable shipment data) and for changes in the population of establishments between the time the first-stage sampling frame was constructed (1995) and the year in which the data were collected (1997). Separate SIC-level adjustment weights are determined for nonauxiliary and auxiliary establishments.

Appendix D.
Standard Classification of Transported Goods Code Information

The commodities shown in this report are classified using the Standard Classification of Transported Goods (SCTG) coding system. The SCTG coding system was created jointly by agencies of the United States and Canadian governments based on the Harmonized System (HS) of product classification which is used worldwide. The purpose of the SCTG coding system was to specifically address statistical needs in regard to products transported.

In the past, Commodity Flow Survey (CFS) data have been collected and reported using product classifications found in the Standard Transportation Commodity Classification (STCC) system. These classifications were developed in the early 1960s by the American Association of Railroads (AAR) to analyze commodity movements by rail. The original purpose of the STCC was for identification of commodities for purposes of assigning rates for Interstate Commerce Commission (ICC) regulated rail carriers. The STCC continues to be used by the AAR as a tariff mechanism.

At the time that the Commodity Transportation Survey (CTS) (the CTS—the predecessor of the CFS) was first conducted in 1963, STCC codes were still useful for analyzing most important aspects of the U.S. transportation system. Since then, many changes have taken place that have gradually made the STCC code less useful for tracking domestic product movements across all modes (although it remains perfectly functional for tracking rail-only movements). These include the deregulation of trucking, the enactment of North American Free Trade Agreement (NAFTA), changes in logistics practices, the emergence of plastics and composite materials to replace metals and glass, the obsolescence of many categories of wood products, and the very rapid recent development of high-tech electronic goods. Because the CFS is a shipper survey, the CFS collects information about shipments moving on all modes. As a consequence, STCC classifications frequently provide inadequate detail for identifying products that are significant for modes, such as truck and air. It is for these reasons that the Bureau of Transportation Statistics (BTS) has sponsored the development of a new product code to collect and report CFS data.

In 1997 the CFS provided respondents with a listing of SCTG 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.

Additional information on the SCTG system can be found on the Internet through the BTS web page at *http://www.bts.gov.* Comments or questions on the SCTG should be directed to *http://cfs@bts.gov.*

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. 0607-0828: Approval Expires 10/31/99

FORM **CFS-1000**
(11-1-96)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1997 COMMODITY FLOW SURVEY
CENSUS OF TRANSPORTATION

Reporting period:

Please return by:

RETURN TO

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

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

BEFORE COMPLETING YOUR REPORT, please read the accompanying instruction guide. If book figures are not available for requested data, please provide estimates. If you have any questions, please call 1–800–772–7851.

Through this survey, we are requesting data on a representative sample of your outbound shipments, to help us produce key statistics used by transportation planners and managers. We greatly appreciate your assistance in this program.

Item A Is the establishment name shown in the mailing address correct?

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

Item B *Mark (X) the **ONE** box which best describes this establishment during the one-week period shown above.*

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

Month	Day	Year

Item C Is this establishment's physical location the same as the address shown in the label? (PO boxes or rural routes are not physical locations.)

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

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

NOTE — The rest of this questionnaire requests information about shipments (or deliveries) from the establishment located at the address in the mailing label.

If you entered a different address in item C — *Please complete the form for shipments originating from the location listed in item C.*

Item D Please enter the **total number** of outbound shipments (or deliveries), including customer pick-up, for the one-week reporting period shown above. If book figures are not available, please provide your best estimate.

This number should reflect all shipments and deliveries leaving this location during the one-week reporting period. *Please see Instruction Guide for a definition of "shipment."*

DO NOT PROCEED UNTIL YOU HAVE COMPLETED ITEM D.

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.

Item E SAMPLING INSTRUCTIONS

Our goal in this section is to identify a sample of your shipments that you will provide data on. Through the use of a sample, we can avoid asking you for information on all of your shipments, while still obtaining statistically accurate information.

FINDING YOUR SELECTION RATE

If you reported 40 or fewer shipments in item D, please enter "1" as your selection rate in the box below, then go directly to item F and enter the information for each of your shipments.

If you reported 41 or more shipments in item D, we will now ask you to select and report on a sample of your shipments. Following the steps below will result in a sample of 20 to 40 shipments to report on in item F.

In the table at right, identify the selection rate that corresponds to the number you entered in item D, and enter it in the box below.

Please enter your selection rate. →

Number of shipments entered in item D	Selection rate
1— 40	1
41— 80	2
81— 100	3
101— 200	5
201— 400	10
401— 800	20
801— 1600	40
1601— 3200	80
3201— 6400	160
6401—12800	320
More than 12800	Call Census at 1–800–772–7851

CONTINUE ON NEXT PAGE.

Item F SHIPMENT CHARACTERISTICS

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)	If a hazardous material, enter the "UN" or "NA" number (h)
0	123-5	4	26	4,235	140	3 5 1 2 0	Electrical transformers	
00	402H	4	26	125,300	626,500	1 7 1 0 0	Gasoline	1 2 0 3
1								
2								
3								
4								
5								
6								
7								
8								
9								

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

Continued →

FORM CFS-1000 (11-1-96)

SELECTING YOUR SAMPLE OF SHIPMENTS

1. Use the file or combination of files that best reflects your full range of outbound shipping activities.

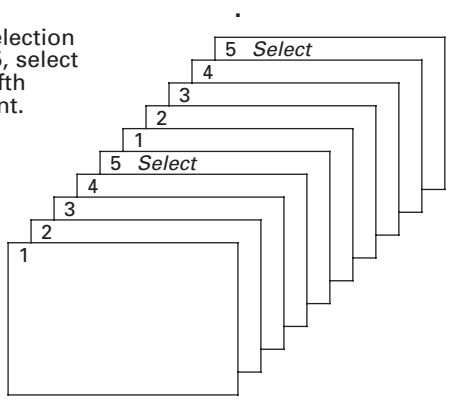
2. Begin with the first shipment. Count the shipments until you reach your selection rate. Select this shipment to report on in item F.

3. Continue counting with the next shipment. Count this shipment as 1 and continue until you reach the selection rate again. Select this shipment to report on in item F.

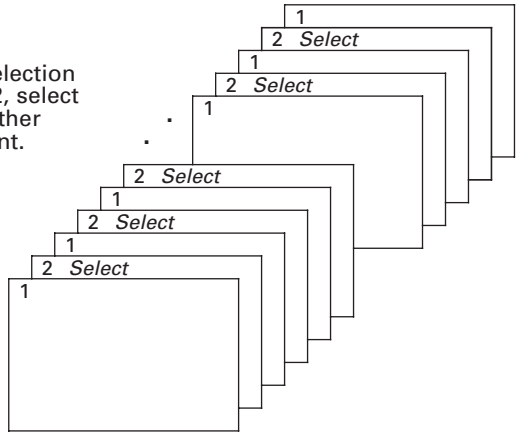
4. Repeat step 3 until you reach the last shipment for the one-week period. If the last shipment is counted as the selection rate, select this shipment to report on in item F. If the last shipment is not counted as the selection rate, do not report this shipment.

In the following examples, each rectangle represents one shipment.

If the selection rate is 5, select every fifth shipment.



If the selection rate is 2, select every other shipment.



Once you have selected your sample of shipments, please proceed to item F and enter the requested information for each selected shipment. Examples of completed lines for two shipments are provided on lines "0" and "00" below.

If you have difficulties constructing a file of shipments or have questions about how to select the sample of your shipments, please call our toll-free number for assistance: 1–800–772–7851.

Containerized? (Y/N) (i)	U.S. destination *(Complete for all shipments.)* (j) City	State	ZIP Code	Mode(s) of transport to U.S. destination *Enter all that apply in order used. Use codes below.* (k)	Export? (Y/N) (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m) City	Country	Export mode (n)	Line No. (o)
N	Los Angeles	CA	90040	2, 4, 3	N				0
N	New York	NY	10454	5	Y	London	England	6	00
									1
									2
									3
									4
									5
									6
									7
									8
									9

5 — Shallow draft vessel
6 — Deep draft vessel
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-1000 (11-1-96)

PLEASE CONTINUE ON PAGE 4.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)	If a hazardous material, enter the "UN" or "NA" number (h)
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								

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

Continued →

FORM CFS-1000 (11-1-96)

Containerized? *(Y/N)* (i)	U.S. destination ***(Complete for all shipments.)*** (j)			Mode(s) of transport to U.S. destination *Enter all that apply in order used. Use codes below.* (k)	Export? *(Y/N)* (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m)		Export mode (n)	Line No. (o)
	City	State	ZIP Code			City	Country		
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27
									28
									29
									30
									31
									32
									33
									34

5 — Shallow draft vessel
6 — Deep draft vessel
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-1000 (11-1-96)

PLEASE CONTINUE ON PAGE 6.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)	If a hazardous material, enter the "UN" or "NA" number (h)
35								
36								
37								
38								
39								
40								

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

Continued →

Item G

1. Do this establishment's outbound shipments leave more than one site within this physical location?

☐ Yes

☐ No

2. Are the records for outbound shipments from this location maintained in a number of separate files (e.g., separate files for each commodity, or for each shipping site) at this location?

☐ Yes

☐ No

If yes to item G1 or item G2:

3. Would it be easier to receive a separate questionnaire for each file or each shipment site?

☐ Yes

☐ No

Item H

Enter the total value of shipments for the one-week reporting period. This figure should represent all products leaving this establishment for the one-week period. An estimate is acceptable.

Total value in whole dollars

Item I

In the last three months did this location have any individual shipments with a value over $2,000,000?

☐ Yes

☐ No

Item J **CERTIFICATION**

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

Signature	Title

Containerized? (Y/N) (i)	U.S. destination **(Complete for all shipments.)** (j) City	State	ZIP Code	Mode(s) of transport to U.S. destination *Enter all that apply in order used. Use codes below.* (k)	Export? (Y/N) (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m) City	Country	Export mode (n)	Line No. (o)
									35
									36
									37
									38
									39
									40

5 — Shallow draft vessel
6 — Deep draft vessel
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

Remarks

THANK YOU FOR COMPLETING YOUR REPORT

FORM CFS-1000 (11-1-96)

Page 7

OMB No. 0607-0828: Approval Expires 10/31/99

FORM **CFS-2000**
(6-9-97)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1997 COMMODITY FLOW SURVEY
CENSUS OF TRANSPORTATION

Reporting period:

Please return by:

RETURN TO

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

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

BEFORE COMPLETING YOUR REPORT, please read the accompanying instruction guide. If book figures are not available for requested data, please provide estimates. If you have any questions, please call 1–800–772–7851.

Through this survey, we are requesting data on a representative sample of your outbound shipments, to help us produce key statistics used by transportation planners and managers. We greatly appreciate your assistance in this program.

Item A Is the establishment name shown in the mailing address correct?

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

Item B *Mark (X) the **ONE** box which best describes this establishment during the one-week period shown above.*

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

Month	Day	Year

Item C Is this establishment's physical location the same as the address shown in the label? (PO boxes or rural routes are not physical locations.)

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

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

NOTE — The rest of this questionnaire requests information about shipments (or deliveries) from the establishment located at the address in the mailing label.

If you entered a different address in item C — *Please complete the form for shipments originating from the location listed in item C.*

Item D Please enter the **total number** of outbound shipments (or deliveries), including customer pick-up, for the one-week reporting period shown above. If book figures are not available, please provide your best estimate.

This number should reflect all shipments and deliveries leaving this location during the one-week reporting period. *Please see Instruction Guide for a definition of "shipment."*

DO NOT PROCEED UNTIL YOU HAVE COMPLETED ITEM D.

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.

Item E SAMPLING INSTRUCTIONS

Our goal in this section is to identify a sample of your shipments that you will provide data on. Through the use of a sample, we can avoid asking you for information on all of your shipments, while still obtaining statistically accurate information.

FINDING YOUR SELECTION RATE

If you reported 40 or fewer shipments in item D, please enter "1" as your selection rate in the box below, then go directly to item F and enter the information for each of your shipments.

If you reported 41 or more shipments in item D, we will now ask you to select and report on a sample of your shipments. Following the steps below will result in a sample of 20 to 40 shipments to report on in item F.

In the table at right, identify the selection rate that corresponds to the number you entered in item D, and enter it in the box below.

Please enter your selection rate. →

Number of shipments entered in item D	Selection rate
1— 40	1
41— 80	2
81— 100	3
101— 200	5
201— 400	10
401— 800	20
801— 1600	40
1601— 3200	80
3201— 6400	160
6401—12800	320
More than 12800	Call Census at 1–800–772–7851

CONTINUE ON NEXT PAGE. →

Item F SHIPMENT CHARACTERISTICS

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)	If a hazardous material, enter the "UN" or "NA" number (h)
0	123-5	4	26	4,235	140	3 5 1 2 0	Electrical transformers	
00	402H	4	26	125,300	626,500	1 7 1 0 0	Gasoline	1 2 0 3
1								
2								
3								
4								
5								
6								
7								
8								
9								

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

Continued →

SELECTING YOUR SAMPLE OF SHIPMENTS

1. Use the file or combination of files that best reflects your full range of outbound shipping activities.

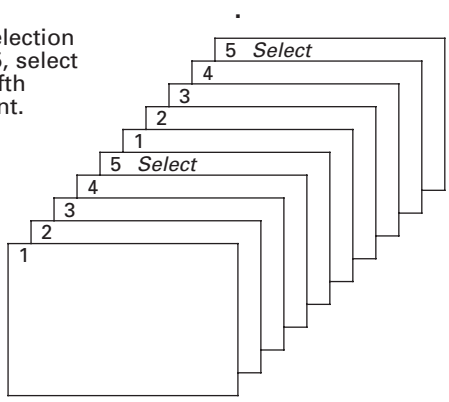
2. Begin with the first shipment. Count the shipments until you reach your selection rate. Select this shipment to report on in item F.

3. Continue counting with the next shipment. Count this shipment as 1 and continue until you reach the selection rate again. Select this shipment to report on in item F.

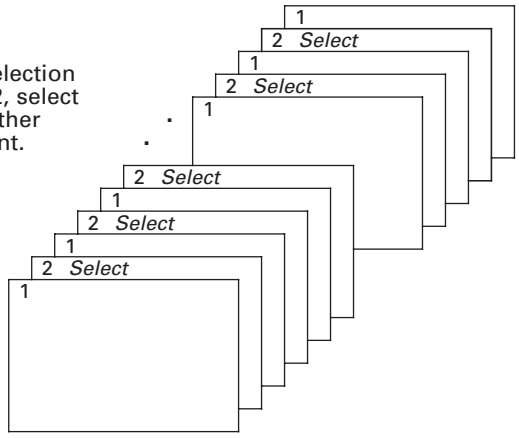
4. Repeat step 3 until you reach the last shipment for the one-week period. If the last shipment is counted as the selection rate, select this shipment to report on in item F. If the last shipment is not counted as the selection rate, do not report this shipment.

In the following examples, each rectangle represents one shipment.

If the selection rate is 5, select every fifth shipment.



If the selection rate is 2, select every other shipment.



Once you have selected your sample of shipments, please proceed to item F and enter the requested information for each selected shipment. Examples of completed lines for two shipments are provided on lines "0" and "00" below.

If you have difficulties constructing a file of shipments or have questions about how to select the sample of your shipments, please call our toll-free number for assistance: 1–800–772–7851.

Containerized? (Y/N) (i)	U.S. destination *(Complete for all shipments.)* (j) City	State	ZIP Code	Mode(s) of transport to U.S. destination *Enter all that apply in order used. Use codes below.* (k)	Export? (Y/N) (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m) City	Country	Export mode (n)	Line No. (o)
N	Los Angeles	CA	90040	2, 4, 3	N				0
N	New York	NY	10454	5	Y	London	England	6	00
									1
									2
									3
									4
									5
									6
									7
									8
									9

5 — Shallow draft vessel
6 — Deep draft vessel
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-2000 (6-9-97)

PLEASE CONTINUE ON PAGE 4.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)	If a hazardous material, enter the "UN" or "NA" number (h)
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								

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

Continued →

Containerized? *(Y/N)* (i)	U.S. destination ***(Complete for all shipments.)*** (j)			Mode(s) of transport to U.S. destination *Enter all that apply in order used. Use codes below.* (k)	Export? *(Y/N)* (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m)		Export mode (n)	Line No. (o)
	City	State	ZIP Code			City	Country		
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27
									28
									29
									30
									31
									32
									33
									34

5 — Shallow draft vessel
6 — Deep draft vessel
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

FORM CFS-2000 (6-9-97)

PLEASE CONTINUE ON PAGE 6.

Item F **SHIPMENT CHARACTERISTICS — Continued**

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)	If a hazardous material, enter the "UN" or "NA" number (h)
35								
36								
37								
38								
39								
40								

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

Continued →

Item G Enter the total dollar value of **all** shipments for the one-week reporting period. This figure should represent all products leaving this establishment for the one-week period. An estimate is acceptable.

Total value in whole dollars

Item H In the last three months did this location have any individual shipments with a value over $2,000,000?

☐ Yes

☐ No

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

In column (b), check "Yes" or "No" for each type of shipping facility to indicate whether or not this type of facility existed **on-site** during 1997. For each "Yes" in column (b), check "Yes" or "No" in column (c) to indicate whether or not you used the facility on your premises for **outbound shipments** during 1997.

Type of shipping facility (a)	Was a shipping facility of this type on your premises during 1997? (b)	Did you **use** this facility on your premises for **outbound shipments** during 1997? (c)
1. Rail siding	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
2. Dock on the Great Lakes	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
3. Dock on inland water	1 ☐ Yes → 2 ☐ No	1 ☐ Yes 2 ☐ No
4. Dock on 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

Containerized? (Y/N) (i)	U.S. destination *(Complete for all shipments.)* (j) City	State	ZIP Code	Mode(s) of transport to U.S. destination *Enter all that apply in order used. Use codes below.* (k)	Export? (Y/N) (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m) City	Country	Export mode (n)	Line No. (o)
									35
									36
									37
									38
									39
									40

5 — Shallow draft vessel
6 — Deep draft vessel
7 — Pipeline
8 — Air
9 — Other mode
0 — Unknown

Item J USE OF OFF-SITE SHIPPING FACILITIES

In column (b), check "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 1997. For each "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 1997? (b)	Distance to the off-site facility of this type that you used most in 1997 *(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. Dock on the Great Lakes	1 ☐ Yes → 2 ☐ No		
3. Dock on inland water	1 ☐ Yes → 2 ☐ No		
4. Dock on deep sea 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)
2 – Private Truck
3 – For-Hire Truck
4 – Rail
5 – Water
6 – Pipeline
7 – Air
8 – Other

PLEASE CONTINUE ON PAGE 8.

Item K USE AND AVAILABILITY OF TRANSPORTATION EQUIPMENT

During 1997, did this location use any of the following types of equipment for outbound shipments? Please check "Yes" or "No." For rail cars reported in number 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 L TRANSPORTATION DECISIONS

During 1997, who generally decided on the mode of transportation for your outbound shipments? *Check the appropriate box.*

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

Remarks

Item M CERTIFICATION

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

Instructions for Completing the Commodity Flow Survey

TIPS FOR COMPLETING THE CFS QUESTIONNAIRE

Please read all instructions.

You may use estimates if book figures are not readily available.

If you have questions about completing the survey, a Census Bureau representative will be glad to assist you. You can call us at 1-800-772-7851.

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

Frequently Asked Questions About the Commodity Flow Survey (CFS)

Why are you conducting the CFS?

The CFS produces valuable measures of the demands on the nation's transportation system.

The results of the CFS are used by transportation policy makers to analyze future transportation needs.

Who reports in the CFS?

The CFS covers a sample of establishments in the mining, manufacturing, wholesale, and selected retail industries.

Why is my participation important?

Your establishment was selected as part of a sample designed to represent a wide range of industries and geographic regions.

Your report helps ensure quality results.

Is this survey mandatory?

Yes. The CFS is mandatory under the authority of Title 13, United States Code (USC).

Will my data be kept confidential?

Yes. The same law that requires your participation, Title 13, USC, also guarantees your data will be kept strictly confidential.

The reports you provide the Census Bureau cannot be used for purposes of taxation, regulation, or investigation.

Your report is used only to develop summary data that do not reveal the activities of individual firms or establishments.

How often must I report?

You will be sent four questionnaires in all: one during each quarter of 1997.

The CFS will not be conducted again until 2002.

PART II – INSTRUCTIONS FOR COMPLETING YOUR QUESTIONNAIRE

Items A – C

Please enter the information requested on your establishment's name, operational status, and physical location.

Item D

Enter in the space provided your total number of outbound shipments **for the one week reporting period** on the front of the questionnaire.

Please include in this count any materials picked up by the customer ("customer pick-up").

What we mean by a "shipment":

For the purposes of this survey, a shipment is a single movement of goods, commodities, products, etc. from your location to a customer or to another location of your company.

"Commodities" refer to items that your location produces, sells, or distributes, *not* to items that are considered by-products of your location's operation.

What we don't mean by a "shipment":

Do *not* include as shipments items such as inter-office memos, payroll checks, business correspondence, etc.

Do *not* include as shipments items such as refuse, scrap paper, waste, and recyclable materials **unless** your location is in the business of selling or providing these materials to others.

A special note about "shipments":

A full, or partial, truckload should be counted as a single shipment only if all the commodities on the truck are destined for one location.

If a truck makes multiple deliveries on a route, **please count each stop as one shipment.**

Item E: Sampling Instructions

If you reported 40 or fewer shipments in Item D, complete Item F (Shipment Characteristics) for all of your shipments covered by the one-week reporting period.

If you reported more than 40 shipments in Item D, follow the instructions in Item E in order to select a sample of shipments on which to report in Item F.

By asking you to select a sample of your shipments for the one-week reporting period, we avoid asking you for information on all your shipments, while still obtaining statistically accurate information.

Reminder: The files you are sampling from should reflect the full range of your location's shipping activities in terms of modes of transportation used, commodities shipped, and destinations.

We're here to answer your questions! If you have questions about the sampling process (or any part of the questionnaire) please call us at 1-800-772-7851.

PART II – INSTRUCTIONS FOR COMPLETING YOUR QUESTIONNAIRE – Continued

Item F: Shipment Characteristics

- **Shipment ID Number (column b) –** Enter the invoice number, shipment number, or some other unique identification number that your establishment could use to find this particular shipping document if questions arise regarding your report.
- **Shipment Date (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.
- **Shipment Value (column d) –** Enter the dollar value, in whole dollars, of the entire shipment. The value should not include freight charges or excise taxes (i.e., report the net selling value, f.o.b. plant). If the value is not readily available from your records, please estimate.
- **Shipment Weight (column e) –** Enter the weight of the total shipment in whole pounds. If weight is not readily available from your records, please estimate.
- **Commodity Code (column f) –** Please use the list of Standard Classification of Transported Goods (SCTG) Codes in the enclosed SCTG Manual to select the proper code. For shipments with more than one commodity, enter only the code for the commodity with the greatest weight.
- **Commodity Description (column g) –** Enter a brief description of the commodity shipped. For shipments with more than one commodity, describe only the commodity with the greatest weight. Do not use trade names, catalog numbers, or other codes not familiar to persons outside your business.

Item F **SHIPMENT CHARACTERISTICS**

Line No. (a)	Shipment ID Number (b)	Shipment date (c) Month	Shipment date (c) Day	Shipment value (excluding shipping costs) in whole dollars (d)	Shipment weight in pounds (e)	Commodity code from SCTG Manual (f)	Commodity description (g)
0	123-5	4	26	4,235	140	3 6 1 2 0	Electrical transformers
00	123-6	4	26	125,300	626,500	1 7 1 0 0	Gasoline
1							
2							
3							
4							

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

Continued →

PART II – INSTRUCTIONS FOR COMPLETING YOUR QUESTIONNAIRE – Continued

Item F: Shipment Characteristics – Continued

- **For Hazardous Materials (column h) –** If shipment is a hazardous material, enter the 4-digit United Nations or North American number.
- **Containerized (column i) –** 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.
- **U.S. Destination: City, State, and ZIP Code (column j) –** 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.

  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 case of land shipments into Mexico or Canada, it is the border crossing.
- **Mode(s) of Transport (column k) –** Enter the code(s) for **all** modes of transport used for the shipment to its U.S. destination (i.e., the destination reported in column j). Codes are located on the bottom of pages 2, 3, 4, and 5 of the questionnaire. Enter in the sequence used, all that apply. See Part III for definitions of each mode.

  For Customer Pick-up: Report the mode(s) of transportation used, if known. Otherwise, report mode as "0" (unknown).

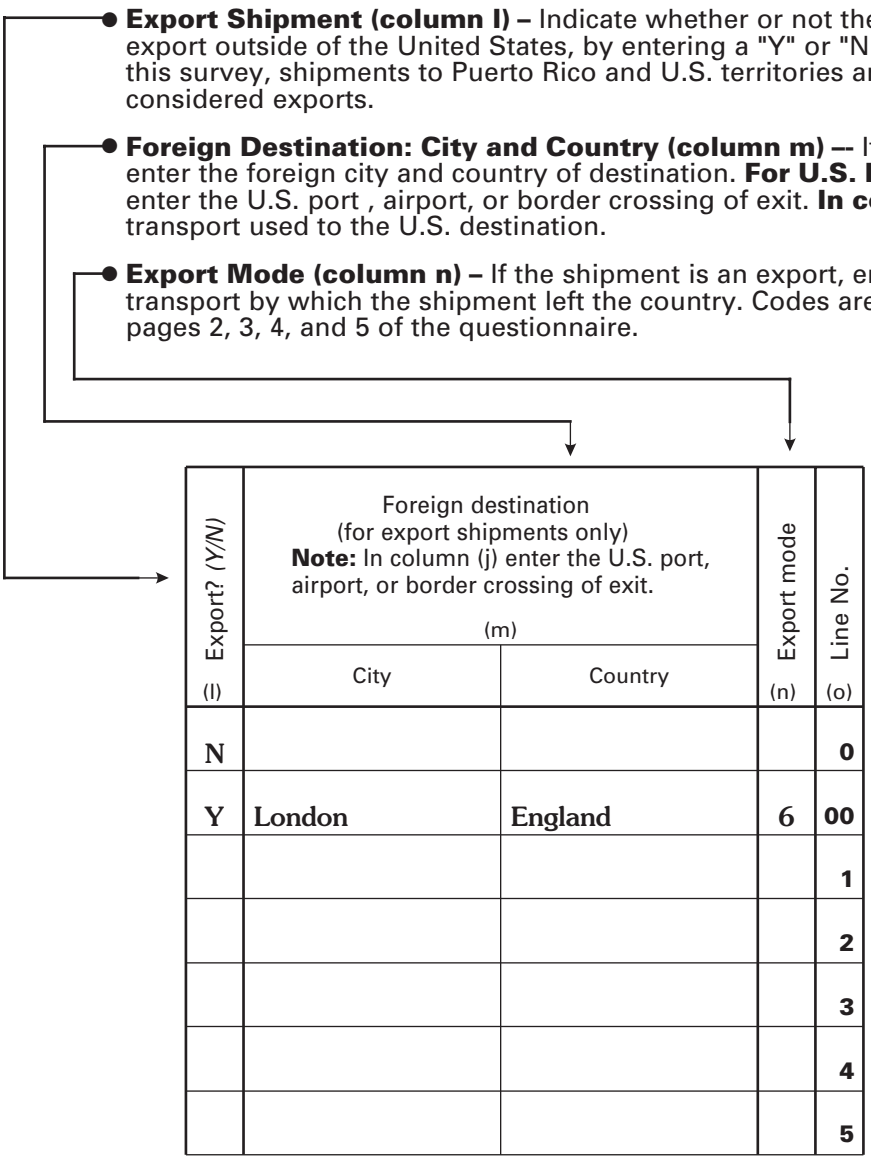
  For Export Shipments: List only the mode(s) of transport used to reach the port, airport, or border crossing of exit.

If a hazardous material, enter the "UN" or "NA" number (h)	Containerized? (Y/N) (i)	U.S. destination (j)			Mode(s) of transport to U.S. destination *Enter all that apply using codes shown below.* (k)
		City	State	ZIP Code	
	N	Los Angeles	CA	90040	2, 4, 3
	N	New York	NY	10454	5

PART II – INSTRUCTIONS FOR COMPLETING YOUR QUESTIONNAIRE – Continued

Item F: Shipment Characteristics – Continued

- **Export Shipment (column l) –** 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.
- **Foreign Destination: City and Country (column m) –-** If the shipment is an export, enter the foreign city and country of destination. **For U.S. Destination (column j),** enter the U.S. port , airport, or border crossing of exit. **In column (k),** enter the mode of transport used to the U.S. destination.
- **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.



Export? *(Y/N)* (l)	Foreign destination (for export shipments only) **Note:** In column (j) enter the U.S. port, airport, or border crossing of exit. (m)		Export mode (n)	Line No. (o)
	City	Country		
N				0
Y	London	England	6	00
				1
				2
				3
				4
				5

Items G – I

Please enter the information requested.

Item J: Certification

Please enter the name and telephone number of the person to contact in the event that we have a question about your report.

PART III – MODE DEFINITIONS

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.

Shallow draft vessel – 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 draft vessel – Barges, ships, or ferries operating primarily in the open ocean. Shipping on the Great Lakes and the Saint Lawrence Seaway is classified with shallow draft vesels.

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 – 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.**

PART IV -- STATE ABBREVIATION LIST

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 - We estimate that it will take an average of 2 hours to complete this form. This includes time to read instructions, assemble and review information, and record answers on the form. If you have any comments regarding this estimate or any other aspect of this survey, send them to the Associate Director for Administration, Attn: Paperwork Reduction Project 0607-0189, Room 3104, Federal Building 3, Bureau of the Census, Washington, DC 20233-0001. Respondents are not required to respond to any information collection unless it displays a valid approval number in the top right corner on the front of the questionnaire.