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Transportation

2002 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 to 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

All results of the 2002 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs and digital versatile discs (CD-ROMs and DVD-ROMs) for sale by the Census Bureau. The American FactFinder system at the Web site allows selective retrieval and downloading of the data. For more information, including a description of reports being issued, see the Web site, write to the U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-763-4636.

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 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 and 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 report forms.

The range of industries covered in the economic censuses expanded between 1967 and 2002. 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. New for 2002 is coverage of four industries classified in the Agriculture, Forestry, and Fishing sector under the SIC system: landscape agricultural services, landscaping services, veterinary services, and pet care services.

Printed statistical reports from the 1997 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. CD-ROMs issued from the 1987, 1992, and 1997 Economic Censuses contain databases including all or 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 2002 Economic Census at www.census.gov/epcd/ec02/guide.html. More information on the methodology, procedures, and history of the censuses will be published in the History of the 2002 Economic Census at www.census.gov/econ/www/history.html.

2002 Commodity Flow Survey

GENERAL

The 2002 Commodity Flow Survey (CFS) is undertaken through a partnership between the U.S. Census Bureau, U.S. Department of Commerce, and the Bureau of Transportation Statistics (BTS), 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 select retail establishments. 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. The CFS was last conducted in 1997.

This report contains background information on the 2002 Commodity Flow Survey and then presents detailed tabular results on shipment characteristics by mode of transportation, commodity, distance shipped, and shipment weight. In Appendix A, key characteristics of the 2002 CFS are compared to those of the 1993 and 1997 surveys. Appendix B focuses on the reliability of the estimates and discusses sampling and nonsampling errors. Tables containing estimates of sampling variability corresponding to each table on shipment characteristics are also included in Appendix B.

This report presents data at the state level. Additional reports will include data for the United States, census regions, divisions, and selected metropolitan areas, as well as selected data on exports and hazardous material shipments.

INDUSTRY COVERAGE

The 2002 CFS covers business establishments with paid employees that are located in the United States and are classified using the 1997 North American Industry Classification System (NAICS) in mining, manufacturing, wholesale trade, and select retail trade industries, namely, electronic shopping and mail-order houses. Establishments classified in services, transportation, construction, and most retail industries are excluded from the survey. Farms, fisheries, foreign establishments, and most government-owned establishments are also excluded.

The survey also covers auxiliary establishments (i.e., warehouses and managing offices) of multi-establishment companies, which have nonauxiliary establishments that are in-scope to the CFS or are classified in retail trade. The coverage of managing offices has been expanded in the 2002 CFS, compared to the 1997 CFS. For the 1997 CFS, the number of in-scope managing offices was reduced to a large extent based on the results of the 1992 Economic Census. A managing office was considered in-scope to the 1997 CFS only if it had sales or end-of-year inventories in the 1992 Census. However, research conducted prior to the 2002 CFS showed that not all managing offices with shipping activity in the 1997 CFS indicated sales or inventories in the 1997 Economic Census. Therefore, the 1997 Economic Census results were not used in the determination of scope for managing offices in the 2002 CFS.

For the 1993 CFS and the 1997 CFS, establishments were classified based on the 1987 Standard Industrial Classification System (SIC). Though an attempt was made to maintain similar coverage between the 1997 CFS and the 2002 CFS, there were some changes in industry coverage due to the conversion from SIC to NAICS. Most notably, coverage of the logging industry changed from an in-scope Manufacturing SIC code (SIC 2411) to an out-of-scope Agriculture, Forestry, Fishing, and Hunting NAICS code (NAICS 1133). Also, coverage of the publishing industry changed from in-scope Manufacturing SIC codes (SIC 2711, 2721, 2731, 2741, and part of 2771) to out-of-scope Information NAICS codes (NAICS 5111 and 51223).

See Appendix A for a comparison between the 2002, 1997, and 1993 surveys. Also see Appendix C for a more detailed discussion on industry coverage and the sample design. The NAICS industries covered in the 2002 CFS are listed in the following table:

NAICS code	Description
212	Mining (Except Oil and Gas)
311	Food Manufacturing
312	Beverage and Tobacco Product Manufacturing
313	Textile Mills
314	Textile Product Mills
315	Apparel Manufacturing
316	Leather and Allied Product Manufacturing
321	Wood Product Manufacturing
322	Paper Manufacturing
323	Printing and Related Support Activities
324	Petroleum and Coal Products Manufacturing
325	Chemical Manufacturing
326	Plastics and Rubber Products Manufacturing
327	Nonmetallic Mineral Product Manufacturing
331	Primary Metal Manufacturing
332	Fabricated Metal Product Manufacturing
333	Machinery Manufacturing
334	Computer and Electronic Product Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
336	Transportation Equipment Manufacturing
337	Furniture and Related Product Manufacturing
339	Miscellaneous Manufacturing
421	Wholesale Trade, Durable Goods
422	Wholesale Trade, Nondurable Goods
4541	Electronic Shopping and Mail-Order Houses
49310	Warehousing and Storage
551114	Corporate, Subsidiary, and Regional Managing Offices

SHIPMENT COVERAGE

The CFS captures data on shipments originating from select 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 U.S. port, airport, or border crossing of exit from the U.S.

The "Industry Coverage" section of the text lists the NAICS groups covered by the CFS. Other industry areas that are not covered, but may have significant shipping activity, include agriculture and government. For agriculture, specifically, this means that the CFS does 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 estimate the distance traveled by each freight shipment sampled for the 2002 Commodity Flow Survey, the BTS Mileage Calculation Team used routing algorithms and an integrated, intermodal transportation network developed and updated expressly for this purpose by the Oak Ridge

National Laboratory (ORNL). The BTS Team worked at a secure data site within the Census Bureau. Each record contained the ZIP Code shipment origin and destination, and the mode or modal sequence required by the routing algorithm for distance estimation. Each record also contained information on type of commodity moved, its weight, dollar value, and hazardous materials status. For export shipments, data on the U.S. port of exit were also identified, along with foreign destination city and country. Processing of shipment records began in the fall of 2002, with completion in October 2003.

One essential exercise was editing and imputing both absent and invalid geographic data elements, specifically origin and destination ZIP Codes, prior to estimating the distance traveled for each freight shipment. For this purpose, the BTS Mileage Calculation Team developed and maintained databases of domestic city/state names and foreign city/country names. The missing data elements, along with other related data problems found by the BTS Team, were either: (1) imputed because of high probability of accurate correction by the BTS Team, such as imputing a missing destination ZIP Code, given a destination city and state; or (2) reported back to the Census Bureau, allowing for call-backs to shippers for clarification/correction.

For a domestic shipment, the mileage is calculated between the center of the geographic area (centroid) of the U.S. origin ZIP Code and the centroid of the destination ZIP Code. The mileage for the shipments within a ZIP Code is calculated by means of a formula that approximates the longest distance within the boundaries of that ZIP Code. The mileage for an export shipment is calculated between a shipment's centroid of U.S. origin ZIP Code and its foreign destination country (city in the case of Canada and Mexico), via a U.S. port of exit (POE), be it seaport, airport, or border crossing. However, only the portion of mileage that falls within the U.S. is included in the CFS estimates. That is to say, once the export reaches the POE, the POE is considered the final domestic destination, the domestic route is finished, and any following mileage is not counted from the POE. These mileages are computed using routing algorithms that find the minimum impedance path over mathematical representations of the U.S. and North American highway, railway and waterway networks, and a transglobal representation of U.S. originating air freight and deep-sea transport networks. Shipment mileages were estimated for each record by summing over the distances of links contained within each minimum impedance path. Impedance was computed as a weighted combination of distance, time, and cost factors.

The ORNL multimodal network database is composed of mode-specific subnetworks representing each of the major transportation modes, such as highway, railway, waterway, and airway (pipeline network was not available due to security reasons). The links of these networks represent line-haul transportation facilities. Network nodes represent intersections and interchanges, along with 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 to connect 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 links characterizing the highway network included speed impacting factors, such as the presence of a divided or undivided roadway, the degree of access control, the rural or urban setting, the number of lanes, the degree of urban congestion, and the length of the link. Link impedance measures were also assigned to the local access links. Intermodal transfer link impedances are estimated in terms of the time it takes to move goods through a transfer facility. In the case of rail and air freight, intercarrier transfer penalties were also considered to obtain proper route selections. A shortest 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 distances used in CFS mileage computations. When rail and air freight were involved, these shipment distances were often averaged over more than one path between an origin-destination pair.

Mileage Data for Pipeline Shipments

For pipeline shipments, ton-miles and average miles per shipment are not shown in the tables. 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.

For security purposes, there is no pipeline network available in the public domain with which to route petroleum-based products. Hence, any modal distance, either single or multi, involving pipeline was considered as solely pipeline mileage from origin ZIP to destination ZIP and calculated to equal great circle distance (GCD). Note: Great circle distance is defined as the shortest distance between two points on the earth's surface, taking into account the earth's curvature.

EXPLANATION OF TERMS

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.

The total value of shipments, as measured by the CFS, and the U.S. gross domestic product (GDP) while similar in size provide different measures of economic activity in the United States and are not directly comparable. GDP is the value of all goods produced and services performed by labor and capital located in the United States. In 2002, the U.S. GDP was estimated at \$10.4 trillion (measured in current U.S. dollars). The value of shipments, as measured by the CFS, is the market value of goods shipped from manufacturing, mining, wholesale, and mail order retail establishments, as well as warehouses and managing offices of multiunit establishments.

Three important differences can be identified between GDP and value of shipments:

1. GDP captures goods produced by all establishments located in the United States, while the CFS measures goods shipped from a subset of all goods-producing establishments.
2. GDP measures the value of goods produced and of services performed. CFS measures the value of goods shipped.
3. GDP counts only the value-added at each step in the production of a product. CFS captures the value of shipments of materials used to produce or manufacture a product, as well as the value of shipments of the finished product itself. This means that the value of the materials used to produce a particular product contributes multiple times to the value.

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 Standard Classification of Transported Goods (SCTG) code for the major commodity contained in the shipment, defined as the commodity with the greatest weight in the total shipment.

Average miles per shipment. For the 1993 CFS, we excluded shipments of Standard Transportation Commodity Classification (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 and 2002 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 estimates for 1997 and 2002.

Distance shipped. In Table 3, shipment data are presented for various “distance shipped” intervals. Shipments were categorized into these “distance shipped” intervals based on the great circle distance between their origin and destination ZIP Code centroids. All other distance-related data in this and other tables (i.e., ton-miles and average miles per shipment) are based on the mileage calculations. (See the “Mileage Calculations” section for more details.)

Great circle distance. The shortest distance between two points on the surface of a sphere over the surface of that sphere.

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 that carry letters, parcels, packages, and other small shipments that typically weigh less than 100 pounds. Includes bus parcel delivery service.
2. **Private truck.** Trucks operated by a temporary or permanent employee of an establishment or the buyer/receiver of the shipment.
3. **For-hire truck.** Trucks that carry freight for a fee collected from the shipper, recipient of the shipment, or an arranger of the transportation.
4. **Railroad.** Any common carrier or private railroad.
5. **Shallow draft vessels.** Barges, ships, or ferries operating primarily on rivers and canals; in harbors, the Great Lakes, the Saint Lawrence Seaway; the Intra-coastal 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.** 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

In addition, Parcel, U.S. Postal Service, or Courier shipments are considered multiple modes because this category includes all parcel shipments whether on the ground or via air tendered

to a parcel or express carrier. In defining this mode, we did not combine these shipments with any other reported mode because by their nature, Parcel, U.S. Postal Service or Courier are already multimodal. For example, if the respondent reported a shipment's mode of transportation as "parcel" and "air," we treated the shipment as parcel only. Also in the CFS reports, the "Truck and Rail" and "Rail and Water" combinations included under "Multiple Modes" may not reflect all the movement of trailers or containers by rail and at least one other mode of transportation. Since the shipper may not always know the modal combinations used to transport the goods, some shipments moving by more than one mode may be reported as a single mode shipment. This may result in underestimation of multimodal shipments in the CFS.

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." (Note: By definition, "shallow draft," "Great Lakes," and "deep draft" are mutually exclusive.)
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.

Other Definitions and Terms

Shipment. A shipment is a single movement of goods, commodities, or products from an establishment to a single customer or to another establishment owned or operated by the same company as the originating establishment (e.g., a warehouse, distribution center, or retail or wholesale outlet). Full or partial truckloads are counted as a single shipment only if all commodities on the truck are destined for the same location. If a truck makes multiple deliveries on a route, the goods delivered at each stop are counted as one shipment. Interoffice memos, payroll checks, or business correspondence are not considered shipments. Shipments such as refuse, scrap paper, waste, or recyclable materials are not considered shipments unless the establishment is in the business of selling or providing these materials.

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 Commodity Description and Coding System (Harmonized System) to address statistical needs in regard to products transported. See Appendix D for more details.

Ton-miles. The shipment weight multiplied by the mileage traveled by the shipment. The respondents reported shipment weight in pounds. Aggregated pound-miles were converted to ton-miles. 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). For trucks making multiple stops, the ton-miles are calculated for each delivery, and each drop-off point is treated as a final destination. Ton-miles estimates 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). For freight shipped to distribution centers for subsequent reshipment, the tonnage is counted each time the goods are transported.

Total modal activity (Table 2 only). 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.)

ABBREVIATIONS AND SYMBOLS

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

–	Represents an estimate equal to zero or less than 1 unit of measure.
D	Denotes estimates withheld to avoid disclosing data of individual companies.
S	Estimate does not meet publication standards because of high sampling variability or poor response quality.
CFS	Commodity Flow Survey.
lb	Pounds.
n.e.c.	Not elsewhere classified.
NA	Not applicable.

OTHER TRANSPORTATION DATA

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

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 2002 and 1997 for most characteristics.

Service 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, percentage of motor carrier freight revenue by commodity type, size of shipments handled, length of haul, and vehicle fleet inventory.

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 301-763-INFO (4636).

Table 1a. Shipment Characteristics by Mode of Transportation for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Total	12 447	100.0	89 547	100.0	61 984	100.0	169
Single modes	10 909	87.6	75 072	83.8	58 967	95.1	74
Truck ²	8 281	66.5	22 292	24.9	4 814	7.8	65
For-hire truck	2 713	21.8	7 681	8.6	3 259	5.3	425
Private truck	5 551	44.6	14 565	16.3	1 534	2.5	50
Rail	1 865	15.0	51 400	57.4	54 069	87.2	1 233
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	396	3.2	34	—	68	.1	1 968
Pipeline ³	S	S	S	S	S	S	S
Multiple modes	1 089	8.7	S	S	S	S	650
Parcel, U.S. Postal Service or courier	1 037	8.3	39	—	23	—	650
Truck and rail	S	S	87	.1	129	.2	1 173
Truck and water	S	S	S	S	S	S	3 415
Rail and water	S	S	S	S	S	S	1 416
Other multiple modes	S	S	S	S	S	S	15
Other and unknown modes	450	3.6	S	S	349	.6	58

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

²"Truck" as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.

³Estimates for pipeline exclude shipments of crude petroleum.

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 1b. Shipment Characteristics by Mode of Transportation for State of Origin: Percent of Total for 2002 and 1997

[Estimates are based on data from the 2002 and 1997 Commodity Flow Surveys. Because of rounding, estimates may not be additive]

Mode of transportation	Value (percent)		Tons (percent)		Ton-miles ¹ (percent)	
	2002	1997	2002	1997	2002	1997
Total	100.0	100.0	100.0	100.0	100.0	100.0
Single modes	87.6	85.9	83.8	85.0	95.1	98.7
Truck ²	66.5	59.2	24.9	21.7	7.8	5.1
For-hire truck	21.8	17.6	8.6	8.3	5.3	3.6
Private truck	44.6	41.5	16.3	13.4	2.5	1.4
Rail	15.0	22.8	57.4	60.8	87.2	93.4
Water	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Air (includes truck and air)	3.2	—	—	—	.1	—
Pipeline ³	S	S	S	S	S	S
Multiple modes	8.7	9.0	S	.8	S	.8
Parcel, U.S. Postal Service or courier	8.3	7.2	—	—	—	—
Truck and rail	S	1.5	.1	.6	.2	.8
Truck and water	S	—	—	—	—	—
Rail and water	S	—	—	—	—	—
Other multiple modes	S	S	—	.1	S	S
Other and unknown modes	3.6	5.0	S	14.3	.6	S

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

²"Truck" as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.

³Estimates for pipeline exclude shipments of crude petroleum.

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 2. Shipment Characteristics by Total Modal Activity for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation ¹	Ton-miles ²		Average miles per shipment
	2002 (millions)	Percent	
Total	61 984	100.0	169
Truck	4 814	7.8	65
Rail	54 069	87.2	1 233
Shallow draft	—	—	—
Great Lakes	—	—	—
Deep draft	—	—	—
Air	68	.1	1 968
Parcel, U.S. Postal Service or courier	S	S	19
Pipeline ³	S	S	S
Other and unknown modes	349	.6	58

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Estimates represent activity for a given mode across single and multiple mode shipments. For example, "Truck" ton-miles includes total ton-miles for shipments moving only by truck plus ton-miles for truck segments of multiple mode shipments.

²Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

³Estimates exclude shipments of crude petroleum (SCTG 16).

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 3. Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation and distance shipped ¹ (based on Great Circle Distance)	Value		Tons		Ton-miles ²	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Total	12 447	100.0	89 547	100.0	61 984	100.0
Less than 50 miles	4 500	36.2	32 181	35.9	690	1.1
50 to 99 miles	921	7.4	2 341	2.6	220	.4
100 to 249 miles	2 007	16.1	3 085	3.4	695	1.1
250 to 499 miles	1 220	9.8	2 666	3.0	1 301	2.1
500 to 749 miles	996	8.0	26 787	29.9	25 594	41.3
750 to 999 miles	928	7.5	14 926	16.7	18 544	29.9
1,000 to 1,499 miles	944	7.6	4 142	4.6	6 883	11.1
1,500 to 1,999 miles	817	6.6	S	S	S	S
2,000 miles or more	114	.9	179	.2	457	.7
Single modes	10 909	100.0	75 072	100.0	58 967	100.0
Less than 50 miles	4 072	37.3	19 633	26.2	367	.6
50 to 99 miles	784	7.2	2 321	3.1	218	.4
100 to 249 miles	1 750	16.0	3 044	4.1	685	1.2
250 to 499 miles	1 067	9.8	2 654	3.5	1 295	2.2
500 to 749 miles	903	8.3	26 779	35.7	25 586	43.4
750 to 999 miles	792	7.3	13 508	18.0	16 632	28.2
1,000 to 1,499 miles	751	6.9	3 751	5.0	6 225	10.6
1,500 to 1,999 miles	708	6.5	S	S	S	S
2,000 miles or more	81	.7	178	.2	453	.8
Truck³	8 281	100.0	22 292	100.0	4 814	100.0
Less than 50 miles	3 625	43.8	13 076	58.7	271	5.6
50 to 99 miles	717	8.7	2 070	9.3	190	4.0
100 to 249 miles	1 695	20.5	2 602	11.7	555	11.5
250 to 499 miles	1 009	12.2	2 260	10.1	1 036	21.5
500 to 749 miles	388	4.7	896	4.0	687	14.3
750 to 999 miles	304	3.7	551	2.5	626	13.0
1,000 to 1,499 miles	273	3.3	539	2.4	797	16.6
1,500 to 1,999 miles	239	2.9	235	1.1	492	10.2
2,000 miles or more	31	.4	63	.3	160	3.3
For-hire truck	2 713	100.0	7 681	100.0	3 259	100.0
Less than 50 miles	610	22.5	2 401	31.3	56	1.7
50 to 99 miles	180	6.6	984	12.8	82	2.5
100 to 249 miles	491	18.1	1 077	14.0	228	7.0
250 to 499 miles	468	17.3	1 309	17.0	615	18.9
500 to 749 miles	258	9.5	765	10.0	594	18.2
750 to 999 miles	227	8.4	434	5.6	482	14.8
1,000 to 1,499 miles	247	9.1	477	6.2	700	21.5
1,500 to 1,999 miles	204	7.5	197	2.6	410	12.6
2,000 miles or more	28	1.0	36	.5	93	2.8
Private truck	5 551	100.0	14 565	100.0	1 534	100.0
Less than 50 miles	3 015	54.3	10 675	73.3	215	14.0
50 to 99 miles	536	9.7	1 086	7.5	108	7.0
100 to 249 miles	1 202	21.7	1 523	10.5	327	21.3
250 to 499 miles	528	9.5	906	6.2	401	26.1
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	25	.5	62	.4	98	6.4
1,500 to 1,999 miles	35	.6	38	.3	82	5.3
2,000 miles or more	2	—	S	S	S	S
Rail	1 865	100.0	51 400	100.0	54 069	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	55	2.9	443	.9	131	.2
250 to 499 miles	57	3.1	394	.8	259	.5
500 to 749 miles	513	27.5	25 883	50.4	24 899	46.1
750 to 999 miles	452	24.3	12 952	25.2	15 996	29.6
1,000 to 1,499 miles	469	25.1	3 211	6.2	5 427	10.0
1,500 to 1,999 miles	126	6.8	S	S	S	S
2,000 miles or more	49	2.6	115	.2	293	.5
Water	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

See footnotes at end of table.

Table 3. Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation and distance shipped ¹ (based on Great Circle Distance)	Value		Tons		Ton-miles ²	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Single modes—Con.						
Great Lakes	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Air (includes truck and air)	396	100.0	34	100.0	68	100.0
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	\$	\$	\$	\$	\$	\$
100 to 249 miles	\$	\$	\$	\$	\$	\$
250 to 499 miles	\$	\$	\$	\$	\$	\$
500 to 749 miles	\$	\$	\$	\$	\$	\$
750 to 999 miles	\$	\$	\$	\$	\$	\$
1,000 to 1,499 miles	10	2.5	5	14.7	10	14.7
1,500 to 1,999 miles	342	86.5	29	85.0	57	84.7
2,000 miles or more	\$	\$	\$	\$	\$	\$
Pipeline⁴	\$	\$	\$	\$	\$	\$
Less than 50 miles	\$	\$	\$	\$	\$	\$
50 to 99 miles	\$	\$	\$	\$	\$	\$
100 to 249 miles	\$	\$	\$	\$	\$	\$
250 to 499 miles	\$	\$	\$	\$	\$	\$
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Multiple modes	1 089	100.0	\$	\$	\$	\$
Less than 50 miles	103	9.5	5	.2	—	—
50 to 99 miles	87	8.0	5	14.7	5	7.3
100 to 249 miles	236	21.7	5	14.7	5	7.3
250 to 499 miles	138	12.7	11	.6	5	7.3
500 to 749 miles	89	8.2	5	14.7	5	7.3
750 to 999 miles	124	11.4	5	14.7	5	7.3
1,000 to 1,499 miles	172	15.8	5	14.7	5	7.3
1,500 to 1,999 miles	107	9.8	5	14.7	5	7.3
2,000 miles or more	32	3.0	5	14.7	5	7.3
Parcel, U.S. Postal Service or courier	1 037	100.0	39	100.0	23	100.0
Less than 50 miles	103	9.9	4	10.8	—	.3
50 to 99 miles	87	8.4	5	12.8	5	21.7
100 to 249 miles	218	21.0	11	27.6	2	9.9
250 to 499 miles	138	13.3	6	15.9	3	14.0
500 to 749 miles	89	8.6	2	6.3	2	10.9
750 to 999 miles	111	10.7	2	5.8	3	12.1
1,000 to 1,499 miles	163	15.7	3	8.9	5	24.0
1,500 to 1,999 miles	104	10.1	2	6.3	5	23.0
2,000 miles or more	23	2.3	—	.6	1	2.7
Truck and rail	\$	\$	87	100.0	129	100.0
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	\$	\$	\$	\$	\$	\$
250 to 499 miles	\$	\$	\$	\$	\$	\$
500 to 749 miles	\$	\$	\$	\$	\$	\$
750 to 999 miles	\$	\$	\$	\$	\$	\$
1,000 to 1,499 miles	\$	\$	\$	\$	\$	\$
1,500 to 1,999 miles	\$	\$	\$	\$	\$	\$
2,000 miles or more	—	—	—	—	—	—
Truck and water	\$	\$	\$	\$	\$	\$
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	\$	\$	\$	\$	\$	\$

See footnotes at end of table.

Table 3. Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation and distance shipped ¹ (based on Great Circle Distance)	Value		Tons		Ton-miles ²	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Multiple modes—Con.						
Rail and water	S	S	S	S	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
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	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other and unknown modes	450	100.0	S	S	349	100.0
Less than 50 miles	326	72.4	S	S	S	S
50 to 99 miles	50	11.1	S	S	S	S
100 to 249 miles	21	4.6	4	—	1	0.3
250 to 499 miles	S	S	2	—	1	0.3
500 to 749 miles	4	.9	S	S	S	S
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	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Shipments are grouped into distance categories based on Great Circle Distance (GCD). GCD is the shortest distance between 2 points on the surface of a sphere over the surface of that sphere.

²Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

³"Truck" as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.

⁴Estimates for pipeline exclude shipments of crude petroleum.

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentially protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 4. Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation and shipment weight	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Total	12 447	100.0	89 547	100.0	61 984	100.0	169
Less than 50 lb	1 317	10.6	59	—	12	—	S
50 to 99 lb	379	3.0	34	—	7	—	206
100 to 499 lb	1 095	8.8	245	.3	40	—	169
500 to 749 lb	330	2.7	146	.2	20	—	138
750 to 999 lb	255	2.0	142	.2	20	—	141
1,000 to 9,999 lb	2 061	16.6	2 320	2.6	220	.4	107
10,000 to 49,999 lb	2 735	22.0	8 855	9.9	2 869	4.6	241
50,000 to 99,999 lb	1 554	12.5	8 671	9.7	1 885	3.0	216
100,000 lb or more	2 722	21.9	69 075	77.1	56 911	91.8	1 118
Single modes	10 909	100.0	75 072	100.0	58 967	100.0	74
Less than 50 lb	S	S	S	S	3	—	S
50 to 99 lb	245	2.2	24	—	3	—	107
100 to 499 lb	911	8.3	224	.3	32	—	145
500 to 749 lb	295	2.7	136	.2	17	—	128
750 to 999 lb	246	2.3	138	.2	19	—	138
1,000 to 9,999 lb	1 942	17.8	2 268	3.0	217	.4	108
10,000 to 49,999 lb	2 705	24.8	8 820	11.7	2 831	4.8	238
50,000 to 99,999 lb	1 549	14.2	8 655	11.5	1 885	3.2	217
100,000 lb or more	2 581	23.7	54 766	73.0	53 961	91.5	1 140
Truck²	8 281	100.0	22 292	100.0	4 814	100.0	65
Less than 50 lb	S	S	S	S	2	—	S
50 to 99 lb	163	2.0	24	.1	3	—	98
100 to 499 lb	821	9.9	223	1.0	31	.6	137
500 to 749 lb	295	3.6	136	.6	17	.4	128
750 to 999 lb	246	3.0	138	.6	19	.4	138
1,000 to 9,999 lb	1 942	23.4	2 268	10.2	216	4.5	108
10,000 to 49,999 lb	2 698	32.6	8 795	39.5	2 787	57.9	235
50,000 to 99,999 lb	1 456	17.6	8 312	37.3	1 505	31.3	182
100,000 lb or more	246	3.0	S	S	234	4.9	251
For-hire truck	2 713	100.0	7 681	100.0	3 259	100.0	425
Less than 50 lb	28	1.0	1	—	—	—	461
50 to 99 lb	23	.8	2	—	1	—	436
100 to 499 lb	252	9.3	23	.3	9	.3	366
500 to 749 lb	58	2.1	7	—	2	—	345
750 to 999 lb	61	2.3	9	.1	4	.1	487
1,000 to 9,999 lb	469	17.3	176	2.3	58	1.8	397
10,000 to 49,999 lb	1 030	38.0	3 101	40.4	2 097	64.3	598
50,000 to 99,999 lb	696	25.7	4 067	53.0	977	30.0	245
100,000 lb or more	96	3.5	S	S	111	3.4	S
Private truck	5 551	100.0	14 565	100.0	1 534	100.0	50
Less than 50 lb	S	S	S	S	S	S	33
50 to 99 lb	139	2.5	22	.2	2	.1	75
100 to 499 lb	567	10.2	200	1.4	22	1.4	111
500 to 749 lb	236	4.3	129	.9	15	1.0	116
750 to 999 lb	185	3.3	129	.9	15	1.0	114
1,000 to 9,999 lb	1 472	26.5	2 091	14.4	159	10.3	87
10,000 to 49,999 lb	1 655	29.8	5 649	38.8	669	43.6	92
50,000 to 99,999 lb	760	13.7	4 245	29.1	528	34.4	124
100,000 lb or more	150	2.7	S	S	S	S	S
Rail	1 865	100.0	51 400	100.0	54 069	100.0	1 233
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	S	S	S	S	S	S	15
1,000 to 9,999 lb	S	S	S	S	S	S	518
10,000 to 49,999 lb	7	.4	S	S	S	S	1 548
50,000 to 99,999 lb	73	3.9	S	S	S	S	1 097
100,000 lb or more	1 785	95.7	51 034	99.3	53 650	99.2	1 246
Water	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnotes at end of table.

Table 4. Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation and shipment weight	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Single modes—Con.							
Great Lakes	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Air (includes truck and air)	396	100.0	34	100.0	68	100.0	1 968
Less than 50 lb	\$	\$	—	.5	—	.6	1 930
50 to 99 lb	\$	\$	—	.5	\$	\$	1 746
100 to 499 lb	\$	\$	\$	\$	\$	\$	2 319
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	\$	\$	\$	\$	\$	\$	1 989
100,000 lb or more	\$	\$	\$	\$	\$	\$	1 989
Pipeline³	\$	\$	\$	\$	\$	\$	\$
Less than 50 lb	\$	\$	\$	\$	\$	\$	\$
50 to 99 lb	\$	\$	\$	\$	\$	\$	\$
100 to 499 lb	\$	\$	\$	\$	\$	\$	\$
500 to 749 lb	\$	\$	\$	\$	\$	\$	\$
750 to 999 lb	\$	\$	\$	\$	\$	\$	\$
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	\$
10,000 to 49,999 lb	\$	\$	\$	\$	\$	\$	\$
50,000 to 99,999 lb	\$	\$	\$	\$	\$	\$	\$
100,000 lb or more	\$	\$	\$	\$	\$	\$	\$
Multiple modes	1 089	100.0	\$	\$	\$	\$	650
Less than 50 lb	757	69.5	15	.8	9	.3	654
50 to 99 lb	105	9.7	6	.3	4	.1	683
100 to 499 lb	137	12.6	12	.6	6	.2	534
500 to 749 lb	\$	\$	4	.2	2	—	430
750 to 999 lb	\$	\$	\$	\$	\$	\$	1 013
1,000 to 9,999 lb	\$	\$	2	—	\$	\$	\$
10,000 to 49,999 lb	\$	\$	14	.7	19	.7	1 437
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	\$	\$	\$	\$	\$	\$	1 183
Parcel, U.S. Postal Service or courier	1 037	100.0	39	100.0	23	100.0	650
Less than 50 lb	757	73.0	15	38.0	9	41.0	654
50 to 99 lb	105	10.1	6	16.1	4	19.6	683
100 to 499 lb	137	13.3	12	29.5	6	27.6	536
500 to 749 lb	\$	\$	4	10.8	2	8.3	437
750 to 999 lb	\$	\$	\$	\$	\$	\$	1 013
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	\$
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Truck and rail	\$	\$	87	100.0	129	100.0	1 173
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	\$	\$	13	15.2	16	12.3	1 211
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	\$	\$	73	84.8	\$	\$	1 137
Truck and water	\$	\$	\$	\$	\$	\$	3 415
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	3 534
10,000 to 49,999 lb	\$	\$	\$	\$	\$	\$	3 322
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnotes at end of table.

Table 4. Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

Mode of transportation and shipment weight	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Multiple modes—Con.							
Rail and water	S	S	S	S	S	S	1 416
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	1 416
Other multiple modes	S	S	S	S	S	S	15
Less than 50 lb	S	S	S	S	S	S	15
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	S	S	S	S	S	S	15
500 to 749 lb	S	S	S	S	S	S	15
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	15
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Other and unknown modes	450	100.0	S	S	349	100.0	58
Less than 50 lb	125	27.9	5	—	—	—	54
50 to 99 lb	29	6.4	3	—	—	—	S
100 to 499 lb	47	10.4	9	—	—	—	S
500 to 749 lb	S	S	S	—	—	—	159
750 to 999 lb	S	S	S	—	—	—	39
1,000 to 9,999 lb	S	S	S	—	3	.8	S
10,000 to 49,999 lb	S	S	S	—	S	S	963
50,000 to 99,999 lb	S	S	S	—	S	S	23
100,000 lb or more	105	23.4	S	—	S	S	42

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

²"Truck" as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.

³Estimates for pipeline exclude shipments of crude petroleum.

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 5a. Shipment Characteristics by Two-Digit Commodity for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code	Commodity description	Value		Tons		Ton-miles ¹		Average miles per shipment
		2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
	Total²	12 447	100.0	89 547	100.0	61 984	100.0	169
01	Live animals and live fish	S	S	S	S	S	S	1 004
02	Cereal grains	424	3.4	3 248	3.6	2 922	4.7	S
03	Other agricultural products	S	S	S	S	S	S	82
04	Animal feed and products of animal origin, n.e.c.	S	S	S	S	102	.2	70
05	Meat, fish, seafood, and their preparations	91	.7	14	—	4	—	348
06	Milled grain products and preparations, and bakery products	252	2.0	377	.4	270	.4	425
07	Other prepared foodstuffs and fats and oils	480	3.9	769	.9	233	.4	75
08	Alcoholic beverages	229	1.8	177	.2	8	—	38
09	Tobacco products	69	.6	2	—	—	—	47
10	Monumental or building stone	S	S	S	S	S	S	252
11	Natural sands	S	S	S	S	S	S	15
12	Gravel and crushed stone	8	—	1 909	2.1	33	—	17
13	Nonmetallic minerals n.e.c.	141	1.1	S	S	S	S	633
14	Metallic ores and concentrates	S	S	S	S	S	S	548
15	Coal	584	4.7	57 578	64.3	41 508	67.0	S
17	Gasoline and aviation turbine fuel	1 743	14.0	6 064	6.8	305	.5	50
18	Fuel oils	729	5.9	2 851	3.2	212	.3	52
19	Coal and petroleum products, n.e.c.	421	3.4	2 453	2.7	1 528	2.5	S
20	Basic chemicals	122	1.0	353	.4	S	S	S
21	Pharmaceutical products	S	S	S	S	S	S	787
22	Fertilizers	S	S	477	.5	S	S	S
23	Chemical products and preparations, n.e.c.	162	1.3	S	S	33	—	S
24	Plastics and rubber	140	1.1	24	—	7	—	226
25	Logs and other wood in the rough	S	S	S	S	S	S	S
26	Wood products	1 297	10.4	3 736	4.2	3 869	6.2	391
27	Pulp, newsprint, paper, and paperboard	259	2.1	569	.6	626	1.0	439
28	Paper or paperboard articles	42	.3	10	—	1	—	125
29	Printed products	55	.4	4	—	1	—	866
30	Textiles, leather, and articles of textiles or leather	172	1.4	S	S	4	—	957
31	Nonmetallic mineral products	154	1.2	1 604	1.8	435	.7	S
32	Base metal in primary or semifinished forms and in finished basic shapes	205	1.6	132	.1	S	S	S
33	Articles of base metal	292	2.3	160	.2	87	.1	S
34	Machinery	509	4.1	69	—	14	—	S
35	Electronic and other electrical equipment and components and office equipment	363	2.9	46	—	6	—	S
36	Motorized and other vehicles (including parts)	473	3.8	78	—	10	—	S
37	Transportation equipment, n.e.c.	—	—	—	—	—	—	—
38	Precision instruments and apparatus	238	1.9	1	—	1	—	817
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	S	S	S	S	S	588
40	Miscellaneous manufactured products	958	7.7	49	—	64	.1	637
41	Waste and scrap	S	S	S	S	S	S	541
43	Mixed freight	1 123	9.0	507	.6	139	.2	231
--	Commodity unknown	S	S	16	—	S	S	229

— Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.
²Estimates exclude shipments of crude petroleum (SCTG 16).

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 5b. Shipment Characteristics by Two-Digit Commodity for State of Origin: Percent of Total for 2002 and 1997

[Estimates are based on data from the 2002 and 1997 Commodity Flow Surveys. Because of rounding, estimates may not be additive]

SCTG code	Commodity description	Value (percent)		Tons (percent)		Ton-miles ¹ (percent)	
		2002	1997	2002	1997	2002	1997
	Total²	100.0	100.0	100.0	100.0	100.0	100.0
01	Live animals and live fish	S	S	S	S	S	S
02	Cereal grains	3.4	5.1	3.6	5.0	4.7	4.5
03	Other agricultural products	S	2.0	S	S	S	—
04	Animal feed and products of animal origin, n.e.c.	S	.6	S	.4	.2	—
05	Meat, fish, seafood, and their preparations .....	.7	S	—	S	—	S
06	Milled grain products and preparations, and bakery products	2.0	2.0	.4	.5	.4	.5
07	Other prepared foodstuffs and fats and oils	3.9	5.5	.9	1.2	.4	.6
08	Alcoholic beverages	1.8	2.0	.2	—	—	—
09	Tobacco products .....	.6	S	—	S	—	S
10	Monumental or building stone	S	—	S	—	S	—
11	Natural sands	S	S	S	S	S	S
12	Gravel and crushed stone	—	—	2.1	S	—	S
13	Nonmetallic minerals n.e.c.	1.1	.4	S	.9	S	.8
14	Metallic ores and concentrates	S	3.0	S	.6	S	.7
15	Coal	4.7	4.9	64.3	62.9	67.0	76.9
17	Gasoline and aviation turbine fuel	14.0	13.0	6.8	6.1	.5	.6
18	Fuel oils	5.9	5.8	3.2	3.8	.3	.8
19	Coal and petroleum products, n.e.c.	3.4	3.4	2.7	5.4	2.5	4.9
20	Basic chemicals	1.0	.9	.4	.7	.6	1.5
21	Pharmaceutical products	S	S	S	S	S	S
22	Fertilizers	S	.9	.5	S	S	S
23	Chemical products and preparations, n.e.c.	1.3	3.5	S	S	—	—
24	Plastics and rubber	1.1	1.2	—	—	—	—
25	Logs and other wood in the rough	S	—	S	.2	S	.1
26	Wood products	10.4	10.4	4.2	3.5	6.2	4.9
27	Pulp, newsprint, paper, and paperboard	2.1	1.4	.6	S	1.0	S
28	Paper or paperboard articles .....	.3	S	—	S	—	S
29	Printed products .....	.4	.3	—	—	—	S
30	Textiles, leather, and articles of textiles or leather	1.4	.4	S	—	—	—
31	Nonmetallic mineral products	1.2	1.4	1.8	2.9	.7	.4
32	Base metal in primary or semifinished forms and in finished basic shapes	1.6	5.1	.1	.5	S	.7
33	Articles of base metal	2.3	1.7	.2	S	.1	S
34	Machinery	4.1	4.8	—	—	—	—
35	Electronic and other electrical equipment and components and office equipment	2.9	3.1	—	—	—	—
36	Motorized and other vehicles (including parts)	3.8	2.8	—	—	—	—
37	Transportation equipment, n.e.c.	—	S	—	S	—	S
38	Precision instruments and apparatus	1.9	1.1	—	—	—	S
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	.4	S	—	S	—
40	Miscellaneous manufactured products	7.7	3.3	—	S	.1	S
41	Waste and scrap	S	S	S	S	.6	S
43	Mixed freight	9.0	4.6	.6	1.4	.2	—
--	Commodity unknown	S	.2	—	S	.6	—

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

²Estimates exclude shipments of crude petroleum (SCTG 16).

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentially protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
ALL COMMODITIES							
Total²	12 447	100.0	89 547	100.0	61 984	100.0	169
Single modes	10 909	87.6	75 072	83.8	58 967	95.1	74
Truck ³	8 281	66.5	22 292	24.9	4 814	7.8	65
For-hire truck	2 713	21.8	7 681	8.6	3 259	5.3	425
Private truck	5 551	44.6	14 565	16.3	1 534	2.5	50
Rail	1 865	15.0	51 400	57.4	54 069	87.2	1 233
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	396	3.2	34	—	68	.1	1 968
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	1 089	8.7	S	S	S	S	650
Parcel, U.S. Postal Service or courier	1 037	8.3	39	—	23	—	650
Truck and rail	S	S	87	.1	129	.2	1 173
Truck and water	S	S	S	S	S	S	3 415
Rail and water	S	S	S	S	S	S	1 416
Other multiple modes	S	S	S	S	S	S	15
Other and unknown modes	450	3.6	S	S	349	.6	58
SCTG 01, LIVE ANIMALS AND LIVE FISH							
Total	S	S	S	S	S	S	1 004
Single modes	S	S	S	S	S	S	1 004
Truck ³	S	S	S	S	S	S	1 004
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	1 004
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 02, CEREAL GRAINS							
Total	424	100.0	3 248	100.0	2 922	100.0	S
Single modes	422	99.5	3 236	99.6	2 919	99.9	363
Truck ³	147	34.7	1 164	35.8	302	10.3	142
For-hire truck	127	30.1	1 012	31.1	260	8.9	255
Private truck	20	4.6	152	4.7	S	S	S
Rail	275	64.8	2 072	63.8	S	S	1 319
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 03, OTHER AGRICULTURAL PRODUCTS							
Total	\$	\$	\$	\$	\$	\$	82
Single modes	\$	\$	\$	\$	\$	\$	82
Truck ³	\$	\$	\$	\$	\$	\$	82
For-hire truck	\$	\$	\$	\$	\$	\$	—
Private truck	\$	\$	\$	\$	\$	\$	82
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 04, ANIMAL FEED AND PRODUCTS OF ANIMAL ORIGIN, N.E.C.							
Total	\$	\$	\$	\$	102	100.0	70
Single modes	\$	\$	\$	\$	101	99.5	91
Truck ³	\$	\$	\$	\$	\$	\$	90
For-hire truck	\$	\$	\$	\$	\$	\$	180
Private truck	\$	\$	\$	\$	\$	\$	87
Rail	4	2.8	50	5.5	\$	\$	\$
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	\$	\$	\$	\$	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	15
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	\$	\$	\$	\$	\$	\$	15
Other and unknown modes	\$	\$	\$	\$	—	.5	\$
SCTG 05, MEAT, FISH, SEAFOOD, AND THEIR PREPARATIONS							
Total	91	100.0	14	100.0	4	100.0	348
Single modes	89	97.5	14	98.9	4	95.6	\$
Truck ³	83	90.4	13	95.0	\$	\$	140
For-hire truck	\$	\$	\$	\$	\$	\$	187
Private truck	\$	\$	\$	\$	\$	\$	134
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	\$	\$	\$	\$	\$	\$	2 295
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	1 018
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	1 018
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	2

See footnotes at end of table.

Table 6. **Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 06, MILLED GRAIN PRODUCTS AND PREPARATIONS, AND BAKERY PRODUCTS							
Total	252	100.0	377	100.0	270	100.0	425
Single modes	249	98.5	376	99.7	269	99.7	253
Truck ³	235	93.1	322	85.5	253	93.8	252
For-hire truck	98	38.8	247	65.5	235	87.0	1 026
Private truck	S	S	75	20.0	18	6.7	155
Rail	S	S	S	S	S	S	1 701
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	1 370
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	1 370
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	256
SCTG 07, OTHER PREPARED FOODSTUFFS AND FATS AND OILS							
Total	480	100.0	769	100.0	233	100.0	75
Single modes	474	98.8	754	98.1	233	99.9	76
Truck ³	417	86.8	633	82.3	74	31.6	73
For-hire truck	34	7.0	44	5.7	30	12.9	523
Private truck	383	79.8	589	76.6	44	18.7	71
Rail	58	12.0	121	15.8	159	68.3	1 363
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	15
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	15
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	15
SCTG 08, ALCOHOLIC BEVERAGES							
Total	229	100.0	177	100.0	8	100.0	38
Single modes	229	100.0	177	100.0	8	100.0	38
Truck ³	229	100.0	177	100.0	8	100.0	38
For-hire truck	S	S	S	S	S	S	119
Private truck	223	97.4	172	96.8	7	91.7	38
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	30

See footnotes at end of table.

Table 6. **Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 09, TOBACCO PRODUCTS							
Total	69	100.0	2	100.0	—	100.0	47
Single modes	67	96.7	2	98.2	—	98.9	47
Truck ³	67	96.7	2	98.2	—	98.9	47
For-hire truck	S	S	S	S	S	S	39
Private truck	67	96.7	2	98.1	—	98.8	47
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	49
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	49
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 10, MONUMENTAL OR BUILDING STONE							
Total	S	S	S	S	S	S	252
Single modes	S	S	S	S	S	S	252
Truck ³	S	S	S	S	S	S	252
For-hire truck	S	S	S	S	S	S	252
Private truck	—	—	—	—	—	—	—
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 11, NATURAL SANDS							
Total	S	S	S	S	S	S	15
Single modes	S	S	S	S	S	S	15
Truck ³	S	S	S	S	S	S	15
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	15
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 12, GRAVEL AND CRUSHED STONE							
Total	8	100.0	1 909	100.0	33	100.0	17
Single modes	8	100.0	1 909	100.0	33	100.0	17
Truck ³	8	100.0	1 909	100.0	33	100.0	17
For-hire truck	S	S	S	S	S	S	27
Private truck	8	98.9	1 895	99.3	32	98.9	17
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 13, NONMETALLIC MINERALS N.E.C.							
Total	141	100.0	S	S	S	S	633
Single modes	138	98.0	S	S	S	S	660
Truck ³	97	69.1	994	22.1	770	9.1	575
For-hire truck	S	S	863	19.2	S	S	881
Private truck	S	S	S	S	S	S	S
Rail	41	28.8	S	S	S	S	1 686
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 341
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	1 341
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	11
SCTG 14, METALLIC ORES AND CONCENTRATES							
Total	S	S	S	S	S	S	548
Single modes	S	S	S	S	S	S	384
Truck ³	S	S	S	S	S	S	S
For-hire truck	S	3.2	S	S	S	S	306
Private truck	S	S	S	S	S	S	97
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 998
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	994
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	994
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 15, COAL							
Total	584	100.0	57 578	100.0	41 508	100.0	S
Single modes	474	81.2	43 371	75.3	38 675	93.2	S
Truck ³	S	S	S	S	S	S	26
For-hire truck	S	S	S	S	S	S	26
Private truck							
Rail	453	77.6	41 497	72.1	38 627	93.1	852
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 416
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	1 416
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	26
SCTG 17, GASOLINE AND AVIATION TURBINE FUEL							
Total	1 743	100.0	6 064	100.0	305	100.0	50
Single modes	1 743	100.0	6 064	100.0	305	100.0	50
Truck ³	1 293	74.2	4 432	73.1	266	87.4	50
For-hire truck	316	18.1	1 057	17.4	46	15.1	S
Private truck	967	55.5	3 343	55.1	205	67.2	50
Rail	S	S	S	S	S	S	64
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	15
SCTG 18, FUEL OILS							
Total	729	100.0	2 851	100.0	212	100.0	52
Single modes	729	100.0	2 851	100.0	212	100.0	52
Truck ³	718	98.5	2 793	98.0	205	97.0	52
For-hire truck	S	S	S	S	S	S	S
Private truck	528	72.4	2 055	72.1	S	S	54
Rail	S	S	S	S	S	S	109
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	14

See footnotes at end of table.

Table 6. **Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 19, COAL AND PETROLEUM PRODUCTS, N.E.C.							
Total	421	100.0	2 453	100.0	1 528	100.0	S
Single modes	420	99.7	2 452	100.0	1 528	100.0	S
Truck ³	326	77.4	1 364	55.6	S	S	S
For-hire truck	47	11.1	293	11.9	49	3.2	161
Private truck	279	66.3	1 071	43.7	164	10.7	S
Rail	S	S	S	S	S	S	1 174
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	—	—	S	S	861
Parcel, U.S. Postal Service or courier	S	S	—	—	S	S	861
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 20, BASIC CHEMICALS							
Total	122	100.0	353	100.0	S	S	S
Single modes	121	99.6	352	99.8	S	S	S
Truck ³	117	96.6	140	39.8	S	S	S
For-hire truck	100	82.2	118	33.4	S	S	612
Private truck	18	14.4	S	S	3	5	S
Rail	S	S	S	S	S	S	1 923
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 132
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 378
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	1 378
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	41
SCTG 21, PHARMACEUTICAL PRODUCTS							
Total	S	S	S	S	S	S	787
Single modes	S	S	S	S	S	S	185
Truck ³	S	S	S	S	S	S	185
For-hire truck	S	S	S	S	S	S	1 813
Private truck	S	S	S	S	S	S	15
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	982
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	982
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 22, FERTILIZERS							
Total	\$	\$	477	100.0	\$	\$	\$
Single modes	\$	\$	477	100.0	\$	\$	\$
Truck ³	\$	\$	\$	\$	\$	\$	\$
For-hire truck	\$	\$	\$	\$	\$	\$	\$
Private truck	\$	\$	\$	\$	10	8.3	\$
Rail	\$	\$	\$	\$	\$	\$	786
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	17
SCTG 23, CHEMICAL PRODUCTS AND PREPARATIONS, N.E.C.							
Total	162	100.0	\$	\$	33	100.0	\$
Single modes	131	81.1	\$	\$	32	96.2	65
Truck ³	131	81.1	\$	\$	32	96.2	65
For-hire truck	76	46.8	\$	\$	31	92.9	\$
Private truck	56	34.4	11	6.2	1	3.4	43
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	\$
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	\$
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	62
SCTG 24, PLASTICS AND RUBBER							
Total	140	100.0	24	100.0	7	100.0	226
Single modes	99	70.2	\$	\$	5	74.2	142
Truck ³	98	70.1	\$	\$	5	74.0	140
For-hire truck	14	10.0	4	14.9	2	32.8	384
Private truck	\$	\$	\$	\$	\$	\$	111
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	\$	\$	\$	\$	\$	\$	1 755
Pipeline ⁴	\$	\$	\$	\$	\$	\$	\$
Multiple modes	29	20.4	2	7.1	2	21.1	609
Parcel, U.S. Postal Service or courier	29	20.3	2	6.9	1	19.1	608
Truck and rail	—	—	—	—	—	—	—
Truck and water	\$	\$	\$	\$	\$	\$	3 534
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	13	9.4	1	6.0	\$	\$	\$

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 25, LOGS AND OTHER WOOD IN THE ROUGH							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	S
Truck ³	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	755
Private truck	S	S	S	S	S	S	S
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	3 322
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	S	S	S	S	S	S	3 322
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 26, WOOD PRODUCTS							
Total	1 297	100.0	3 736	100.0	3 869	100.0	391
Single modes	1 249	96.3	3 668	98.2	3 829	99.0	449
Truck ³	727	56.1	2 265	60.6	1 497	38.7	362
For-hire truck	514	39.6	1 860	49.8	1 363	35.2	626
Private truck	213	16.4	405	10.8	134	3.5	146
Rail	522	40.3	1 403	37.6	2 332	60.3	1 640
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	S	S	S	S	S	S	1 268
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	25	2.0	S	S	S	S	S
SCTG 27, PULP, NEWSPRINT, PAPER, AND PAPERBOARD							
Total	259	100.0	569	100.0	626	100.0	439
Single modes	249	95.9	567	99.8	625	99.8	376
Truck ³	74	28.6	150	26.3	125	20.0	244
For-hire truck	60	23.2	S	S	124	19.8	577
Private truck	14	5.4	10	1.7	1	.2	116
Rail	175	67.3	418	73.4	S	S	1 200
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	450
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	450
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	987

See footnotes at end of table.

Table 6. **Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 28, PAPER OR PAPERBOARD ARTICLES							
Total	42	100.0	10	100.0	1	100.0	125
Single modes	33	78.5	9	91.5	1	80.2	65
Truck ³	33	78.5	9	91.5	1	80.2	65
For-hire truck	3	6.7	1	8.7	—	14.6	109
Private truck	30	71.8	8	82.8	1	65.5	58
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	—	.4	—	—	12
SCTG 29, PRINTED PRODUCTS							
Total	55	100.0	4	100.0	1	100.0	866
Single modes	25	44.8	2	53.1	—	35.6	S
Truck ³	25	44.6	2	53.1	—	35.4	S
For-hire truck	13	23.2	1	36.5	—	34.3	393
Private truck	12	21.5	1	16.5	—	1.1	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 638
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	22	39.1	1	26.8	1	57.5	1 187
Parcel, U.S. Postal Service or courier	22	39.1	1	26.8	1	57.5	1 187
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	9	16.1	1	20.1	S	S	S
SCTG 30, TEXTILES, LEATHER, AND ARTICLES OF TEXTILES OR LEATHER							
Total	172	100.0	S	S	4	100.0	957
Single modes	37	21.7	2	27.0	1	30.7	1 076
Truck ³	32	18.7	2	26.0	1	27.2	1 040
For-hire truck	20	11.6	1	5.9	S	S	1 377
Private truck	S	S	2	20.0	S	S	54
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 664
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	131	76.5	S	S	2	68.0	974
Parcel, U.S. Postal Service or courier	131	76.5	S	S	2	68.0	974
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	3	1.8	S	S	S	S	S

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 31, NONMETALLIC MINERAL PRODUCTS							
Total	154	100.0	1 604	100.0	435	100.0	S
Single modes	151	98.0	1 600	99.8	435	99.9	106
Truck ³	121	78.4	1 110	69.2	173	39.8	S
For-hire truck	24	15.8	343	21.4	89	20.4	229
Private truck	97	62.6	768	47.9	85	19.4	S
Rail	30	19.6	490	30.6	S	S	531
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 061
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	1 061
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	11
SCTG 32, BASE METAL IN PRIMARY OR SEMIFINISHED FORMS AND IN FINISHED BASIC SHAPES							
Total	205	100.0	132	100.0	S	S	S
Single modes	190	92.8	131	98.8	S	S	S
Truck ³	94	45.8	S	S	S	S	75
For-hire truck	S	S	S	S	S	S	S
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	1 501
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 662
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	2	1.1	—	.1	S	S	635
Parcel, U.S. Postal Service or courier	2	1.1	—	.1	S	S	635
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 33, ARTICLES OF BASE METAL							
Total	292	100.0	160	100.0	87	100.0	S
Single modes	248	84.9	156	97.8	87	99.3	S
Truck ³	248	84.9	156	97.7	87	99.2	S
For-hire truck	S	S	S	S	S	S	552
Private truck	77	26.2	37	23.1	9	10.6	S
Rail	S	S	S	S	S	S	361
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	34	11.5	1	.5	S	S	483
Parcel, U.S. Postal Service or courier	34	11.5	1	.5	S	S	483
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	19

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 34, MACHINERY							
Total	509	100.0	69	100.0	14	100.0	S
Single modes	329	64.5	59	86.6	12	84.2	S
Truck ³	323	63.4	59	86.4	12	83.1	S
For-hire truck	100	19.5	S	S	S	S	493
Private truck	223	43.8	42	61.8	2	14.9	26
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 224
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	98	19.3	5	6.9	1	10.5	438
Parcel, U.S. Postal Service or courier	98	19.3	5	6.9	1	10.5	438
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	83	16.2	4	6.5	S	S	69
SCTG 35, ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONENTS AND OFFICE EQUIPMENT							
Total	363	100.0	46	100.0	6	100.0	S
Single modes	238	65.5	39	85.0	5	80.3	S
Truck ³	237	65.3	39	85.0	5	80.0	S
For-hire truck	66	18.1	9	19.2	2	24.8	S
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 836
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	96	26.5	3	6.5	1	16.6	720
Parcel, U.S. Postal Service or courier	96	26.5	3	6.5	1	16.6	720
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 36, MOTORIZED AND OTHER VEHICLES (INCLUDING PARTS)							
Total	473	100.0	78	100.0	10	100.0	S
Single modes	320	67.7	65	83.7	8	82.0	S
Truck ³	320	67.7	65	83.6	8	81.6	S
For-hire truck	86	18.2	10	12.3	3	31.1	324
Private truck	234	49.5	56	71.3	5	50.5	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	4 142
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	42	8.8	2	3.0	1	7.9	412
Parcel, U.S. Postal Service or courier	42	8.8	2	3.0	1	7.9	412
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	1	10.0	S

See footnotes at end of table.

Table 6. Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 37, TRANSPORTATION EQUIPMENT, N.E.C.							
Total	-	-	-	-	-	-	-
Single modes	-	-	-	-	-	-	-
Truck ³	-	-	-	-	-	-	-
For-hire truck	-	-	-	-	-	-	-
Private truck	-	-	-	-	-	-	-
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 38, PRECISION INSTRUMENTS AND APPARATUS							
Total	238	100.0	1	100.0	1	100.0	817
Single modes	S	S	S	S	S	S	S
Truck ³	S	S	S	S	S	S	22
For-hire truck	-	-	-	-	-	-	-
Private truck	S	S	S	S	S	S	22
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	S	S	S	S	S	S	2 891
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	219	92.1	1	77.7	1	98.9	868
Parcel, U.S. Postal Service or courier	219	92.1	1	77.7	1	98.9	868
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	15
SCTG 39, FURNITURE, MATTRESSES AND MATTRESS SUPPORTS, LAMPS, LIGHTING FITTINGS, AND ILLUMINATED SIGNS							
Total	S	S	S	S	S	S	588
Single modes	S	S	S	S	S	S	420
Truck ³	S	S	S	S	S	S	420
For-hire truck	S	S	S	S	S	S	407
Private truck	S	S	S	S	S	S	423
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	872
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	872
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	59

See footnotes at end of table.

Table 6. **Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 40, MISCELLANEOUS MANUFACTURED PRODUCTS							
Total	958	100.0	49	100.0	64	100.0	637
Single modes	714	74.6	41	82.5	58	89.7	624
Truck ³	432	45.1	21	42.4	19	28.7	471
For-hire truck	338	35.3	16	32.0	17	26.5	797
Private truck	94	9.8	5	10.4	1	2.2	165
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 403
Pipeline ⁴	—	—	—	—	—	—	S
Multiple modes	235	24.5	8	17.0	7	10.2	645
Parcel, U.S. Postal Service or courier	235	24.5	8	17.0	7	10.2	645
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	—	.4	S	S	284
SCTG 41, WASTE AND SCRAP							
Total	S	S	S	S	S	S	541
Single modes	S	S	S	S	S	S	541
Truck ³	S	S	S	S	S	S	541
For-hire truck	S	S	S	S	S	S	541
Private truck	—	—	—	—	—	—	—
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 43, MIXED FREIGHT							
Total	1 123	100.0	507	100.0	139	100.0	231
Single modes	1 093	97.4	505	99.8	139	99.6	180
Truck ³	1 093	97.4	505	99.8	139	99.6	180
For-hire truck	63	5.6	S	S	S	S	228
Private truck	1 028	91.6	471	93.0	111	79.7	178
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	231
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	25	2.2	1	.2	1	.4	705
Parcel, U.S. Postal Service or courier	25	2.2	1	.2	1	.4	705
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	4	.4	S	S	S	S	S

See footnotes at end of table.

Table 6. **Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
COMMODITY UNKNOWN							
Total	S	S	16	100.0	S	S	229
Single modes	14	82.8	16	99.2	S	S	116
Truck ³	14	82.8	16	99.2	S	S	116
For-hire truck	9	49.8	10	59.8	S	S	334
Private truck	S	S	6	39.4	S	S	62
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	479
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	479
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.
²Estimates exclude shipments of crude petroleum (SCTG 16).
³"Truck" as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.
⁴Estimates for pipeline exclude shipments of crude petroleum.

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 7. Outbound Shipment Characteristics by State of Destination for State of Origin: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

State of destination	Value		Tons		Ton-miles ¹	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Total	12 447	100.0	89 547	100.0	61 984	100.0
NEW ENGLAND STATES						
Connecticut	11	—	14	—	36	—
Maine	S	S	S	S	S	S
Massachusetts	41	.3	42	—	108	.2
New Hampshire	S	S	S	S	S	S
Rhode Island	S	S	S	S	S	S
Vermont	S	S	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	340	2.7	87	.1	191	.3
New York	72	.6	S	S	S	S
Pennsylvania	60	.5	S	S	S	S
EAST NORTH CENTRAL STATES						
Illinois	300	2.4	6 171	6.9	7 704	12.4
Indiana	77	.6	1 309	1.5	1 718	2.8
Michigan	105	.8	S	S	S	S
Ohio	52	.4	82	—	155	.3
Wisconsin	269	2.2	13 454	15.0	14 302	23.1
WEST NORTH CENTRAL STATES						
Iowa	40	.3	151	.2	182	.3
Kansas	26	.2	14	—	19	—
Minnesota	219	1.8	12 701	14.2	11 428	18.4
Missouri	70	.6	101	.1	151	.2
Nebraska	55	.4	92	.1	92	.1
North Dakota	136	1.1	590	.7	332	.5
South Dakota	224	1.8	336	.4	201	.3
SOUTH ATLANTIC STATES						
Delaware	S	S	S	S	S	S
District of Columbia	S	S	S	S	S	S
Florida	51	.4	S	S	S	S
Georgia	29	.2	S	S	S	S
Maryland	14	.1	9	—	22	—
North Carolina	55	.4	58	—	138	.2
South Carolina	S	S	17	—	40	—
Virginia	22	.2	S	S	S	S
West Virginia	4	—	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	S	S	S	S	S	S
Kentucky	S	S	S	S	S	S
Mississippi	S	S	S	S	S	S
Tennessee	33	.3	37	—	74	.1
WEST SOUTH CENTRAL STATES						
Arkansas	32	.3	35	—	63	.1
Louisiana	16	.1	S	S	S	S
Oklahoma	15	.1	15	—	25	—
Texas	151	1.2	S	S	S	S
MOUNTAIN STATES						
Arizona	74	.6	353	.4	636	1.0
Colorado	177	1.4	303	.3	280	.5
Idaho	279	2.2	858	1.0	393	.6
Montana	7 033	56.5	37 076	41.4	1 529	2.5
Nevada	87	.7	S	S	S	S
New Mexico	19	.2	21	—	27	—
Utah	195	1.6	565	.6	361	.6
Wyoming	639	5.1	888	1.0	283	.5
PACIFIC STATES						
Alaska	S	S	—	—	S	S
California	637	5.1	1 606	1.8	2 453	4.0
Hawaii	S	S	S	S	S	S
Oregon	321	2.6	3 446	3.8	3 611	5.8
Washington	314	2.5	S	S	S	S

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

Note: Value-of-shippments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 8. Inbound Shipment Characteristics by State of Origin for State of Destination: 2002

[Estimates are based on data from the 2002 Commodity Flow Survey. Because of rounding, estimates may not be additive]

State of origin	Value		Tons		Ton-miles ¹	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Total	23 295	100.0	45 309	100.0	8 888	100.0
NEW ENGLAND STATES						
Connecticut	S	S	S	S	S	S
Maine	S	S	S	S	S	S
Massachusetts	S	S	S	S	S	S
New Hampshire	24	.1	—	—	1	—
Rhode Island	S	S	S	S	S	S
Vermont	17	—	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	S	S	S	S	S	S
New York	241	1.0	S	S	S	S
Pennsylvania	277	1.2	33	—	69	.8
EAST NORTH CENTRAL STATES						
Illinois	604	2.6	123	.3	169	1.9
Indiana	S	S	87	.2	133	1.5
Michigan	246	1.1	36	—	56	.6
Ohio	S	S	S	S	S	S
Wisconsin	S	S	134	.3	166	1.9
WEST NORTH CENTRAL STATES						
Iowa	522	2.2	156	.3	179	2.0
Kansas	205	.9	69	.2	84	.9
Minnesota	280	1.2	S	S	S	S
Missouri	355	1.5	70	.2	95	1.1
Nebraska	162	.7	S	S	51	.6
North Dakota	398	1.7	289	.6	131	1.5
South Dakota	64	.3	45	.1	31	.3
SOUTH ATLANTIC STATES						
Delaware	17	—	5	—	11	.1
District of Columbia	S	S	S	S	S	S
Florida	159	.7	S	S	S	S
Georgia	123	.5	42	—	93	1.1
Maryland	21	—	2	—	3	—
North Carolina	127	.5	S	S	S	S
South Carolina	33	.1	16	—	37	.4
Virginia	S	S	S	S	S	S
West Virginia	3	—	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	S	S	S	S	S	S
Kentucky	109	.5	S	S	S	S
Mississippi	37	.2	S	S	S	S
Tennessee	556	2.4	54	.1	97	1.1
WEST SOUTH CENTRAL STATES						
Arkansas	S	S	37	—	66	.7
Louisiana	S	S	S	S	S	S
Oklahoma	S	S	76	.2	113	1.3
Texas	1 227	5.3	413	.9	751	8.4
MOUNTAIN STATES						
Arizona	117	.5	S	S	S	S
Colorado	1 004	4.3	S	S	299	3.4
Idaho	282	1.2	681	1.5	228	2.6
Montana	7 033	30.2	37 076	81.8	1 529	17.2
Nevada	273	1.2	90	.2	82	.9
New Mexico	16	—	S	S	S	S
Utah	924	4.0	710	1.6	470	5.3
Wyoming	182	.8	1 329	2.9	425	4.8
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	1 791	7.7	S	S	S	S
Hawaii	—	—	—	—	—	—
Oregon	584	2.5	294	.6	209	2.4
Washington	1 687	7.2	1 131	2.5	540	6.1

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.

Note: Value-of-shippments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentially protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Discussion of Survey Changes and Comparing Estimates

The following tables provide comparisons of the 2002 and 1997 Commodity Flow Survey (CFS) estimates.

Data users are urged to use caution in comparing estimates from different survey years due to the changes that have occurred in sample design, industry coverage, methodology, commodity classification coding systems, geography, and sample sizes. Appendix A presents change in these areas by survey year.

INDUSTRY COVERAGE CHANGES

Changes to the 2002 CFS include moving the industry coverage from a Standard Industrial Classification (SIC) based definition in the 1997 CFS to a North American Industry Classification System (NAICS) based definition for the 2002 survey. For the 2002 CFS, this meant that selected industries previously covered in the 1997 CFS using the SIC definitions, were now out-of-scope to the 2002 CFS industry coverage based on the NAICS definitions. The major industries not covered by the 2002 CFS that were included in the 1997 CFS are Logging (NAICS 11331); Newspaper Periodical, Book, and Database Publishers (NAICS 5111); and Music Publishers (NAICS 51223).

To make the 1997 CFS estimates comparable with the 2002 CFS, the 1997 CFS estimates have been revised by removing shipments from establishments in the following industries:

- SIC 2411 Logging
- SIC 2711 Newspapers: Publishing, or Publishing and Printing
- SIC 2721 Periodicals: Publishing, or Publishing and Printing
- SIC 2731 Books: Publishing, or Publishing and Printing
- SIC 2741 Miscellaneous Publishing
- SIC 2771 Greeting Cards

We were not able to adjust the 1997 CFS estimates to account the NAICS coverage changes when only part of a SIC moved out-of-scope. For example, a wholesale industry in-scope to the 1997 CFS—SIC 5171 (Petroleum Bulk Stations and Terminals)—included Heating Oil Sold Via Retail Method, which is now classified as Retail (NAICS 454311) and is out-of-scope of the 2002 CFS. The majority of the industry remains in-scope to the 2002 CFS industry coverage, therefore we made no adjustment to the 1997 CFS estimates.

No adjustments have been made to the 1993 CFS estimates.

Detailed information about NAICS can be found at www.census.gov/epcd/www/naics.html.

AUXILIARY ESTABLISHMENT COVERAGE CHANGES

The 2002 CFS improved the coverage of auxiliary establishments. Auxiliary establishments are defined as warehouses and managing offices of multiestablishment companies, which have non-auxiliary establishments that are in-scope to CFS or are classified in retail trade. For the 1997 CFS sampling, managing offices had to have sales or inventory levels of greater than zero in order to be considered for selection. However, research conducted prior to the 2002 CFS showed that not all managing offices with shipping activity in the 1997 CFS indicated sales or inventories in the 1997 Economic Census. Therefore, to provide a more comprehensive coverage of auxiliaries, for the 2002 CFS managing offices were subjected to sampling, regardless of sales or inventories.

COMPARISON DATA AND STATISTICAL VALIDITY

Changes from the 1997 to 2002 CFS include a decrease in sample size, from approximately 100,000 establishments for the 1997 CFS to about 50,000 establishments for the 2002 survey.

One consequence of the decreased sample size was a substantial increase in the sampling variability for estimates of period-to-period change produced at full detail levels for mode and commodity. Because of the increased variability in many of these categories, one cannot conclude with a high degree of confidence that changes were significant. For a more detailed discussion of sampling variability, see Appendix B. We have provided period-to-period comparisons at the following, higher levels of aggregation for mode of transportation and commodity since the impact of increased sampling variability is less at those levels. For consistency, these aggregation levels are also now used in our Metropolitan Area and Export tables, where appropriate.

Table 9. Shipment Characteristics by Mode of Transportation for State of Origin: 2002 and 1997

[Estimates are based on data from the 2002 and 1997 Commodity Flow Surveys. Because of rounding, estimates may not be additive]

Mode of transportation	Value			Tons			Ton-miles ¹			Average miles per shipment		
	2002 (million dollars)	1997 (million dollars)	Percent change	2002 (thousands)	1997 (thousands)	Percent change	2002 (millions)	1997 (millions)	Percent change	2002	1997	Percent change
Total	12 447	12 250	1.6	89 547	86 777	3.2	61 984	67 362	-8.0	169	185	-9.0
Single modes	10 909	10 528	3.6	75 072	73 749	1.8	58 967	66 490	-11.3	74	111	-33.2
Truck ²	8 281	7 251	14.2	22 292	18 850	18.3	4 814	3 418	40.8	65	85	-23.8
Rail	1 865	2 793	-33.2	51 400	52 789	-2.6	54 069	62 939	-14.1	1 233	1 136	8.5
Water	—	—	—	—	—	—	—	—	—	—	—	—
Air (includes truck and air)	396	S	S	34	S	S	68	S	S	1 968	1 603	22.8
Pipeline ³	S	S	S	S	S	S	S	S	S	S	S	S
Multiple modes	1 089	1 105	-1.5	S	661	S	S	535	S	650	628	3.6
Parcel, U.S. Postal Service or courier ..	1 037	886	17.0	39	25	59.0	23	15	55.1	650	629	3.4
Truck and rail	S	188	S	87	549	-84.2	129	520	-75.1	1 173	1 265	-7.2
All other multiple modes	S	S	S	S	87	S	S	S	S	S	10	S
Other and unknown modes ...	450	616	-27.1	S	12 367	S	349	S	S	58	38	53.6

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.
²Truck as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.

³Estimates for pipeline exclude shipments of crude petroleum.

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Table 10. Shipment Characteristics by Commodity Group for State of Origin: 2002 and 1997

[Estimates are based on data from the 2002 and 1997 Commodity Flow Surveys. Because of rounding, estimates may not be additive]

SCTG code	Commodity description	Value			Tons			Ton-miles ¹			Average miles per shipment		
		2002 (million dollars)	1997 (million dollars)	Percent change	2002 (thousands)	1997 (thousands)	Percent change	2002 (millions)	1997 (millions)	Percent change	2002	1997	Percent change
	Total²	12 447	12 250	1.6	89 547	86 777	3.2	61 984	67 362	-8.0	169	185	-9.0
01-05	Agricultural products and fish	799	1 157	-31.0	4 355	5 015	-13.2	3 205	3 177	.9	S	S	S
06-09	Grains, alcohol, and tobacco products	1 031	1 255	-17.9	1 325	1 605	-17.4	511	715	-28.6	106	84	25.4
10-14	Stones, nonmetallic minerals, and metallic ores	315	434	-27.4	6 560	2 448	168.0	S	1 049	S	S	S	S
15-19	Coal and petroleum products	3 476	3 324	4.6	68 946	67 874	1.6	43 553	56 036	-22.3	75	124	-39.3
20-24	Basic chemicals, chemical, and pharmaceutical products	563	847	-33.5	1 044	1 805	-42.2	662	1 156	-42.7	237	260	-8.7
25-30	Logs, wood products, and textile and leather	1 857	1 690	9.9	4 441	3 825	16.1	4 552	4 077	11.6	578	394	46.7
31-34	Base metal and machinery ..	1 160	1 592	-27.1	1 965	3 019	-34.9	648	901	-28.0	S	184	S
35-38	Electronic, motorized vehicles, and precision instruments	1 074	865	24.1	126	83	51.2	17	18	-5.9	S	168	S
39-43	Furniture, mixed freight and misc. manufactured prod. ..	2 153	1 064	102.3	768	S	S	313	S	S	415	484	-14.3
--	Commodity unknown	S	21	S	16	S	S	S	3	S	229	165	38.5

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

¹Ton-miles estimates are based on estimated distances traveled along a modeled transportation network. See "Mileage Calculations" section for additional information.
²Estimates exclude shipments of crude petroleum (SCTG 16).

Note: Value-of-shipments estimates have not been adjusted for price changes. Appendix B tables provide estimated measures of sampling variability. The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Note: Coverage for the 2002 Commodity Flow Survey (CFS) differs from the previous surveys due to a change from the 1987 Standard Industrial Classification System to the 1997 North American Industry Classification System and other survey improvements. Therefore, data users are urged to use caution when comparing 2002 CFS estimates with estimates from prior years.

Appendix A.

Comparability With the 1993 and 1997 Commodity Flow Surveys

The following tables show a comparison of the key characteristics among the 1993, 1997, and 2002 Commodity Flow Surveys.

Industry Coverage

1993	1997	2002
Based on 1987 SIC	Based on 1987 SIC	Based on 1997 NAICS ¹
Manufacturing (excluding Printing Trade Services (SIC 279))	Manufacturing (excluding Printing Trade Services (SIC 279))	Manufacturing (excluding Prepress Services (NAICS 323122))
Mining (except mining services (SICs 108, 124, 138, 148) and oil and gas extraction (SICs 131 and 132))	Mining (except mining services (SICs 108, 124, 138, 148) and oil and gas extraction (SICs 131 and 132))	Mining (except support activities (NAICS 213) and oil and gas extraction (NAICS 211))
Wholesale (merchants and manufacturers' sales branches and government-owned liquor stores)	Wholesale (merchants and manufacturers' sales branches and government-owned liquor stores)	Wholesale (merchants and manufacturers' sales branches and government-owned liquor stores)
Retail catalog and mail order houses	Retail catalog and mail order houses	Retail electronic shopping and mail order houses
Auxiliaries (e.g., warehouses)	Auxiliaries (e.g., warehouses)	Auxiliaries ² (e.g., warehouses)

¹Because of changes in the classification of establishments between SIC and NAICS, establishments classified in the following industries were covered in the 1993 and 1997 surveys, but not in the 2002 survey: NAICS 11331, Logging; NAICS 5111, Newspaper, Periodical, Book, and Database Publishers; and NAICS 51223, Music Publishers. Detailed information about NAICS can be found on the Census Bureau Web site at: <http://www.census.gov/epcd/www/naics.html>.

²Coverage of auxiliaries has been expanded for the 2002 CFS. In comparison, for the 1997 CFS, the number of in-scope managing offices was reduced to a large extent based on the results of the 1992 Economic Census. For the 1997 CFS, a managing office was considered in-scope only if it had sales or end-of-year inventories in the 1992 Census. Research conducted prior to the 2002 CFS showed that not all managing offices with shipping activity in the 1997 CFS indicated sales or inventories in the 1997 Economic Census. Therefore, the 1997 Economic Census results were not used to determine scope for managing offices in the 2002 CFS. For the 2002 survey, the inclusion of an increased number of auxiliaries (intermediary distribution centers) which support the operations of retail stores (most of which are, themselves out-of-scope) has more of an impact on the estimates of value and tonnage and less on ton-miles.

Commodity Classification System

1993	1997	2002
Standard Transportation Commodity Classification (STCC), developed by the Association of American Railroads (AAR)	Standard Classification of Transported Goods (SCTG)	Standard Classification of Transported Goods (SCTG)

Sample Size

1993	1997	2002
Approximately 200,000 establishments selected from a universe of about 790,000 in-scope establishments.	Approximately 100,000 establishments selected from a universe of about 770,000 in-scope establishments.	Approximately 50,000 establishments selected from a universe of about 760,000 in-scope establishments.

Survey Methodology

1993	1997	2002
Respondents reported for a sample of their individual outbound shipments for a 2-week period during each of the four calendar quarters of the reference year.	Respondents reported for a sample of their individual outbound shipments for a 1-week period during each of the four calendar quarters of the reference year.	Respondents reported for a sample of their individual outbound shipments for a 1-week period during each of the four calendar quarters of the reference year.
Respondents reported key characteristics for each sampled shipment	Respondents reported key characteristics for each sampled shipment.	Respondents reported key characteristics for each sampled shipment.

Reported Mode of Transportation

1993	1997	2002
For-hire truck	For-hire truck	For-hire truck
Private truck	Private truck	Private truck
Rail	Rail	Rail
Air	Air	Air
Inland Water	Shallow draft vessel	Shallow draft vessel
Deep Sea Water	Deep draft vessel	Deep draft vessel
Pipeline	Pipeline	Pipeline
Parcel, U.S. Postal Service, or courier	Parcel, U.S. Postal Service, or courier	Parcel, U.S. Postal Service, or courier
Other	Other	Other
Unknown	Unknown	Unknown

Data Items Requested

1993	1997	2002
For each shipment:	For each shipment:	For each shipment:
Total value	Total value	Total value
Total weight	Total weight	Total weight
Commodity that contributes the most to the shipment's weight (STCC)	Commodity that contributes the most to the shipment's weight (SCTG)	Commodity that contributes the most to the shipment's weight (SCTG)
All known modes of transportation	All known modes of transportation	All known modes of transportation
Single origin (assumed to be the mailing address unless the respondent provided a different physical location address)	Single origin (assumed to be the mailing address unless the respondent provided a different physical location address)	Single origin (assumed to be the mailing address unless the respondent provided a different physical location address)
Destination	Destination	Destination
Containerized (Y/N)	Containerized (Y/N)	
Hazardous material (Y/N)	Hazardous material (UN/NA) code	Hazardous material (UN/NA) code
Export (Y/N)	Export (Y/N)	Export (Y/N)
If export: mode of export, foreign city and country of destination; U.S. port, airport, or border crossing of exit.	If export: mode of export, foreign city and country of destination; U.S. port, airport, or border crossing of exit.	If export: mode of export, foreign city and country of destination; U.S. port, airport, or border crossing of exit.

Appendix B.

Reliability of the Estimates

The estimates in this publication may differ from the actual, unknown population values. Statisticians define this difference as the total error of the estimate. When describing the accuracy of survey results, it is convenient to discuss total error as the sum of sampling error and nonsampling error. Sampling error is the average difference between the estimate and the result that would be obtained from a complete enumeration of the sampling frame conducted under the same survey conditions. Nonsampling error encompasses all other factors that contribute to the total error of a sample survey estimate.

The sampling error of the estimates in this publication can be estimated from the selected sample because the sample was selected using probability sampling. Common measures related to sampling error are the sampling variance, the standard error, and the coefficient of variation (CV). The sampling variance is the squared difference, averaged over all possible samples of the same size and design, between the estimator and its average value. The standard error is the square root of the sampling variance. The CV expresses the standard error as a percentage of the estimate to which it refers. This publication presents these measures in Appendix B.

Nonsampling errors are difficult to measure and can be introduced through inadequacies in the questionnaire, nonresponse, inaccurate reporting by respondents, errors in the application of survey procedures, incorrect recording of answers, and errors in data entry and processing. No measures of nonsampling error are presented in this publication, however, every effort is made to minimize their effect on the estimates. Data users should take into account both the measures of sampling error and the potential effects of nonsampling error when using these estimates.

More detailed descriptions of sampling and nonsampling errors for the 2002 CFS are provided in the following sections.

Sampling Error

Because the estimates are based on a sample, exact agreement with results that would be obtained from a complete enumeration of all shipments made in 2002 from all establishments included on the sampling frame using the same enumeration procedures 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 that could have been selected using the same design. If all possible samples had been surveyed under the same conditions, an estimate of a population parameter of interest could have been obtained from each sample. These samples give rise to a distribution of estimates for the population parameter. A statistical measure of the variability among these estimates is the standard error, which can be approximated from any one sample. The *standard error* is defined as the square root of the variance. The *coefficient of variation* (or relative standard error) of an estimator is the standard error of the estimator divided by the estimator. Note that measures of sampling variability, such as the standard error and 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, for the sake of brevity, we have omitted this detail.) It is important to note that the standard error only measures sampling variability. It does not measure systematic biases of the sample. The Census Bureau recommends that individuals using estimates contained in this report incorporate this information into their analyses, as sampling error could affect the conclusions drawn from these estimates.

An estimate from a particular sample and the standard error associated with the estimate can be used to construct a confidence interval. A *confidence interval* is a range about a given estimator that has a specified probability of containing the result of a complete enumeration of the sampling frame conducted under the same survey conditions. Associated with each interval is a percentage of confidence, which is interpreted as follows. If, for each possible sample, an estimate of a population parameter and its approximate standard error were obtained, then:

1. For approximately 90 percent of the possible samples, the interval from 1.645 standard errors below to 1.645 standard errors above the estimate would include the result as obtained from a complete enumeration of the sampling frame conducted under the same survey conditions.
2. For approximately 95 percent of the possible samples, the interval from 1.96 standard errors below to 1.96 standard errors above the estimate would include the result as obtained from a complete enumeration of the sampling frame conducted under the same survey conditions.

To illustrate the computation of a confidence interval for an estimate of total value of shipments, assume that an estimate of total value is \$10,750 million and the coefficient of variation for this estimate is 1.8 percent, or 0.018. First obtain the standard error of the estimate by multiplying the value of shipments estimate by its coefficient of variation. For this example, multiply \$10,750 million by 0.018. This yields a standard error of \$193.5 million. The upper and lower bounds of the 90-percent confidence interval are computed as \$10,750 million plus or minus 1.645 times \$193.5 million. Consequently, the 90-percent confidence interval is \$10,432 million to \$11,068 million. If corresponding confidence intervals were constructed for all possible samples of the same size and design, approximately 9 out of 10 (90 percent) of these intervals would contain the result obtained from a complete enumeration.

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: inability to obtain information about all units in the sample; response errors; differences in the interpretation of the questions; mistakes in coding or keying the data obtained; and other errors of collection, response, coverage, and processing. Although no direct measurement of the potential biases due to nonsampling error has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence. The Census Bureau recommends that individuals using estimates in this report incorporate this information into their analyses, as nonsampling error could affect the conclusions drawn from these estimates.

A potential source of bias in the estimates is nonresponse. Nonresponse is defined as the inability to obtain all the intended measurements or responses from all units in the sample. 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. Nonresponse to the shipment value or weight items is corrected by imputation, which is the procedure by which a missing value is replaced by a predicted value obtained from an appropriate model. (See Appendix C for a description of the imputation procedure.) Shipment, quarter, and establishment nonresponse are used to describe the inability to obtain any of the substantive measurements about a sampled shipment, quarter, or establishment, respectively. Shipment and quarter nonresponse are corrected 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 industry-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 63 percent of the establishments provided at least one quarter of data that contributed to tabulation.

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 contact respondents who reported shipments having an untypically 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.)

DEFINITION OF TERMS

Confidentiality

Title 13 of the United States Code authorizes the Census Bureau to conduct censuses and surveys. Section 9 of the same Title requires that any information collected from the public under the authority of Title 13 be maintained as confidential. Section 214 of Title 13 and Sections 3559 and 3571 of Title 18 of the United States Code provide for the imposition of penalties of up to 5 years in prison and up to \$250,000 in fines for wrongful disclosure of confidential census information. In accordance with Title 13, no estimates are published that would disclose the operations of an individual firm.

The Census Bureau's internal Disclosure Review Board sets the confidentiality rules for all data releases. A checklist approach is used to ensure that all potential risks to the confidentiality of the data are considered and addressed.

Disclosure Limitation

Disclosure is the release of data that have been deemed confidential. It generally reveals information about a specific individual or establishment or permits deduction of sensitive information about a particular individual or establishment. Disclosure limitation is the process used to protect the confidentiality of the survey data provided by an individual or firm. Using disclosure limitation procedures, the Census Bureau modifies or removes the characteristics that put confidential information at risk for disclosure. Although it may appear that a table shows information about a specific individual or business, the Census Bureau has taken steps to disguise or suppress the original data while making sure the results are still useful. The techniques used by the Census Bureau to protect confidentiality in tabulations vary, depending on the type of data.

Unpublished Estimates

Some unpublished estimates can be derived directly from this report by subtracting published estimates from their respective totals. However, the estimates obtained by such subtraction would be subject to poor response, high sampling variability, or other factors that may make them potentially misleading.

Individuals who use estimates in this report to create new estimates should cite the Census Bureau as the source of only the original estimates.

Table B-1a. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation for State of Origin: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

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	
Total	3.4	—	8.0	—	24.7	—	32.0
Single modes	3.7	1.5	14.2	7.6	26.1	2.5	43.8
Truck	5.8	3.0	13.2	3.0	13.0	5.5	38.5
For-hire truck	11.2	2.1	14.9	1.3	18.1	3.7	12.3
Private truck	7.3	2.8	17.7	2.7	13.3	1.9	28.8
Rail	11.3	1.9	22.2	9.5	27.9	6.3	5.6
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	40.6	1.3	46.4	—	46.3	—	20.1
Pipeline	S	S	S	S	S	S	S
Multiple modes	17.4	1.5	S	S	S	S	14.1
Parcel, U.S. Postal Service or courier	18.3	1.5	27.3	—	19.5	—	14.1
Truck and rail	S	S	38.7	—	48.7	—	22.7
Truck and water	S	S	S	S	S	S	29.8
Rail and water	S	S	S	S	S	S	29.8
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	14.9	.5	S	S	45.8	1.1	49.3

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-1b. Estimated Standard Errors of Percentage for Shipment Characteristics by Mode of Transportation for State of Origin: Percent of Total for 2002 and 1997

[Estimates are shown as percents and are based on data from the 2002 and 1997 Commodity Flow Surveys]

Mode of transportation	Value (percent)		Tons (percent)		Ton-miles (percent)	
	2002	1997	2002	1997	2002	1997
Total	—	—	—	—	—	—
Single modes	1.5	1.5	7.6	5.8	2.5	.5
Truck	3.0	2.4	3.0	3.4	5.5	3.3
For-hire truck	2.1	1.6	1.3	2.2	3.7	2.7
Private truck	2.8	2.7	2.7	2.3	1.9	.8
Rail	1.9	2.1	9.5	6.7	6.3	3.6
Water	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Air (includes truck and air)	1.3	S	—	S	—	S
Pipeline	S	S	S	S	S	S
Multiple modes	1.5	.8	S	.2	S	.3
Parcel, U.S. Postal Service or courier	1.5	.8	—	—	—	—
Truck and rail	S	.2	—	.2	—	.3
Truck and water	S	—	S	—	S	—
Rail and water	S	—	S	—	S	—
Other multiple modes	S	S	S	—	S	S
Other and unknown modes .....	.5	1.2	S	5.8	1.1	S

— Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-2. **Estimated Measures of Reliability for Shipment Characteristics by Total Modal Activity for State of Origin: 2002**

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

Mode of transportation	Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	
Total	24.7	—	32.0
Truck	13.0	5.5	38.5
Rail	27.9	6.3	5.6
Shallow draft	—	—	—
Great Lakes	—	—	—
Deep draft	—	—	—
Air	46.3	—	20.1
Parcel, U.S. Postal Service or courier	S	S	42.8
Pipeline	S	S	S
Other and unknown modes	45.8	1.1	49.3

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-3. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

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
Total	3.4	—	8.0	—	24.7	—
Less than 50 miles	9.9	2.7	25.9	9.8	27.4	1.6
50 to 99 miles	7.9	.7	16.6	.5	17.4	.3
100 to 249 miles	8.7	1.5	18.6	.8	19.9	1.2
250 to 499 miles	5.6	.5	15.6	.5	15.8	1.6
500 to 749 miles	15.1	1.4	28.4	6.9	29.8	6.3
750 to 999 miles	12.9	1.0	24.2	4.0	24.1	4.6
1,000 to 1,499 miles	14.0	1.1	30.2	1.6	30.9	5.4
1,500 to 1,999 miles	20.6	1.3	S	S	S	S
2,000 miles or more	16.5	.2	37.9	—	37.0	.6
Single modes	3.7	—	14.2	—	26.1	—
Less than 50 miles	10.1	2.8	28.8	7.5	26.2	.8
50 to 99 miles	9.8	.7	16.8	1.2	17.8	.3
100 to 249 miles	9.6	1.7	18.2	1.9	19.4	1.3
250 to 499 miles	5.9	.5	15.7	.8	15.9	1.7
500 to 749 miles	16.4	1.5	28.4	6.5	29.8	6.2
750 to 999 miles	15.6	1.2	25.1	3.5	24.9	4.1
1,000 to 1,499 miles	16.6	1.1	28.6	2.4	29.8	5.6
1,500 to 1,999 miles	22.7	1.5	S	S	S	S
2,000 miles or more	25.3	.2	38.3	.2	37.4	.6
Truck	5.8	—	13.2	—	13.0	—
Less than 50 miles	9.9	2.1	19.4	3.5	23.6	1.1
50 to 99 miles	8.1	.8	15.9	2.0	16.9	1.0
100 to 249 miles	10.2	1.9	19.2	2.4	20.7	4.1
250 to 499 miles	6.8	.8	17.8	1.5	18.0	3.9
500 to 749 miles	20.5	1.0	27.1	1.2	26.8	2.7
750 to 999 miles	21.9	.9	22.0	.8	22.9	2.9
1,000 to 1,499 miles	15.4	.5	26.2	.4	25.1	2.0
1,500 to 1,999 miles	21.4	.6	23.4	.3	23.2	1.8
2,000 miles or more	32.2	.1	46.2	.1	45.8	1.0
For-hire truck	11.2	—	14.9	—	18.1	—
Less than 50 miles	43.7	5.1	41.2	6.7	38.8	.8
50 to 99 miles	16.5	1.4	24.6	3.7	24.2	1.0
100 to 249 miles	11.1	2.8	12.1	1.3	14.8	1.7
250 to 499 miles	11.2	2.6	21.3	5.5	22.8	4.6
500 to 749 miles	17.5	1.4	29.3	2.2	29.1	3.1
750 to 999 miles	12.7	1.2	22.0	.8	21.4	1.9
1,000 to 1,499 miles	16.6	1.6	28.9	1.2	27.8	2.6
1,500 to 1,999 miles	22.5	1.7	27.8	.6	28.0	2.1
2,000 miles or more	32.3	.3	39.8	.2	39.7	.8
Private truck	7.3	—	17.7	—	13.3	—
Less than 50 miles	10.0	2.3	22.6	3.8	24.8	2.9
50 to 99 miles	11.8	1.3	24.7	2.1	25.9	1.4
100 to 249 miles	12.7	2.2	30.3	3.1	31.7	6.9
250 to 499 miles	18.1	1.3	31.0	.9	30.1	5.0
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	31.3	.1	35.0	.2	36.2	1.8
1,500 to 1,999 miles	33.5	.3	38.9	.1	38.9	1.8
2,000 miles or more	39.6	—	S	S	S	S
Rail	11.3	—	22.2	—	27.9	—
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	30.4	.8	24.1	1.6	25.7	.4
250 to 499 miles	27.9	1.0	30.9	1.5	33.9	.9
500 to 749 miles	23.1	7.0	28.8	7.7	30.2	6.9
750 to 999 miles	17.7	4.9	25.8	4.6	25.5	4.9
1,000 to 1,499 miles	27.5	4.1	32.2	5.1	33.3	6.8
1,500 to 1,999 miles	31.0	1.2	S	S	S	S
2,000 miles or more	30.7	.5	43.7	.4	42.1	.6
Water	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

See footnotes at end of table.

Table B-3. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
Single modes—Con.						
Great Lakes	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Air (includes truck and air)	40.6	—	46.4	—	46.3	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	S	S	S	S	S	S
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	47.4	8.4	S	S	S	S
1,500 to 1,999 miles	43.1	14.3	45.6	15.0	45.5	14.9
2,000 miles or more	S	S	S	S	S	S
Pipeline	S	S	S	S	S	S
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	S	S	S	S
250 to 499 miles	S	S	S	S	S	S
500 to 749 miles	S	S	S	S	S	S
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
Multiple modes	17.4	—	S	S	S	S
Less than 50 miles	42.7	3.2	26.5	3.3	24.6	—
50 to 99 miles	45.1	1.5	S	S	S	S
100 to 249 miles	25.1	3.0	S	S	S	S
250 to 499 miles	23.9	1.7	42.6	3.7	36.8	1.9
500 to 749 miles	23.6	1.7	S	S	S	S
750 to 999 miles	18.1	2.2	S	S	S	S
1,000 to 1,499 miles	25.2	2.4	S	S	S	S
1,500 to 1,999 miles	24.0	1.6	S	S	S	S
2,000 miles or more	36.4	1.3	S	S	S	S
Parcel, U.S. Postal Service or courier	18.3	—	27.3	—	19.5	—
Less than 50 miles	42.7	3.8	25.3	4.1	21.3	—
50 to 99 miles	45.1	1.5	S	S	S	S
100 to 249 miles	27.8	3.0	34.9	4.4	33.9	2.6
250 to 499 miles	24.0	1.7	38.7	2.4	33.5	2.5
500 to 749 miles	23.6	1.9	36.1	2.1	35.8	2.2
750 to 999 miles	18.3	1.8	20.4	1.2	19.5	1.3
1,000 to 1,499 miles	25.6	2.7	19.6	1.7	19.4	3.3
1,500 to 1,999 miles	24.4	1.8	22.8	1.8	23.2	2.7
2,000 miles or more	30.0	.6	21.2	.2	20.8	.5
Truck and rail	S	S	38.7	—	48.7	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	S	S	S	S	S	S
500 to 749 miles	S	S	S	S	S	S
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	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	S	S	S	S	S	S

See footnotes at end of table.

Table B-3. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation and Distance Shipped for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
Multiple modes—Con.						
Rail and water	S	S	S	S	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
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	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other and unknown modes	14.9	—	S	S	45.8	—
Less than 50 miles	20.1	7.6	S	S	S	S
50 to 99 miles	42.3	4.2	S	S	S	S
100 to 249 miles	30.4	3.0	29.8	3.2	32.3	7.7
250 to 499 miles	S	S	46.6	.7	48.7	4.6
500 to 749 miles	45.5	.4	S	S	S	S
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	41.3	—	46.8	.5
2,000 miles or more	—	—	—	—	—	—

— Represents data cell equal to zero or less than 1 unit of measure.

S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-4. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

Mode of transportation and shipment weight	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	3.4	—	8.0	—	24.7	—	32.0
Less than 50 lb	21.2	1.8	46.0	—	18.1	—	S
50 to 99 lb	29.3	.7	25.7	—	24.4	—	22.6
100 to 499 lb	12.6	1.1	19.6	—	17.7	—	9.2
500 to 749 lb	11.4	.2	15.2	—	21.7	—	15.0
750 to 999 lb	7.8	.2	11.9	—	13.8	—	13.0
1,000 to 9,999 lb	10.7	1.8	16.0	.6	14.7	.3	21.0
10,000 to 49,999 lb	10.8	2.2	13.1	.8	21.4	3.1	11.7
50,000 to 99,999 lb	11.7	1.5	12.5	1.4	21.0	1.8	10.6
100,000 lb or more	13.6	2.8	9.8	1.6	26.5	5.0	7.1
Single modes	3.7	—	14.2	—	26.1	—	43.8
Less than 50 lb	S	S	S	S	38.4	—	S
50 to 99 lb	43.5	.8	30.8	—	24.5	—	21.1
100 to 499 lb	12.5	1.0	19.7	—	18.0	—	9.1
500 to 749 lb	10.6	.3	14.5	—	22.6	—	16.3
750 to 999 lb	8.5	.2	11.6	—	14.8	—	13.2
1,000 to 9,999 lb	9.9	2.1	16.4	.6	14.9	.3	20.8
10,000 to 49,999 lb	10.9	2.4	13.1	2.2	21.8	3.3	12.0
50,000 to 99,999 lb	11.6	1.7	12.4	3.4	21.0	2.0	10.6
100,000 lb or more	14.5	3.1	19.4	5.5	28.0	5.5	6.4
Truck²	5.8	—	13.2	—	13.0	—	38.5
Less than 50 lb	S	S	S	S	41.7	—	S
50 to 99 lb	19.9	.3	31.0	—	26.0	—	21.4
100 to 499 lb	10.5	.8	19.7	.3	16.8	.2	6.3
500 to 749 lb	10.6	.3	14.5	.1	22.6	.1	16.3
750 to 999 lb	8.6	.2	11.6	.1	14.8	—	13.2
1,000 to 9,999 lb	9.9	2.5	16.4	2.4	14.9	.9	20.8
10,000 to 49,999 lb	11.0	2.3	13.0	3.8	21.0	4.8	11.7
50,000 to 99,999 lb	12.0	2.1	11.3	3.7	11.4	4.3	9.5
100,000 lb or more	28.8	.8	S	S	39.1	1.2	48.9
For-hire truck	11.2	—	14.9	—	18.1	—	12.3
Less than 50 lb	26.2	.3	21.7	—	33.3	—	21.9
50 to 99 lb	34.1	.3	24.0	—	31.1	—	24.1
100 to 499 lb	16.3	1.9	23.4	.1	22.4	.1	21.2
500 to 749 lb	26.4	.7	30.0	—	27.7	—	31.7
750 to 999 lb	24.4	.6	23.4	—	24.3	—	34.8
1,000 to 9,999 lb	14.5	3.0	33.3	.7	30.8	.4	25.1
10,000 to 49,999 lb	18.4	2.6	23.6	4.6	26.7	5.3	12.8
50,000 to 99,999 lb	17.0	2.9	13.7	5.0	17.1	5.1	18.2
100,000 lb or more	44.0	1.5	S	S	41.4	1.4	S
Private truck	7.3	—	17.7	—	13.3	—	28.8
Less than 50 lb	S	S	S	S	S	S	44.0
50 to 99 lb	22.8	.4	32.9	—	30.7	—	22.1
100 to 499 lb	10.4	1.1	21.3	.4	18.5	.4	8.1
500 to 749 lb	13.1	.4	15.0	.2	22.9	.2	17.5
750 to 999 lb	14.9	.5	11.7	.2	19.8	.2	15.4
1,000 to 9,999 lb	10.3	3.2	17.3	4.1	14.1	3.1	18.9
10,000 to 49,999 lb	11.3	2.6	14.3	3.5	19.8	4.1	13.6
50,000 to 99,999 lb	21.9	2.7	20.0	4.0	14.8	3.3	30.5
100,000 lb or more	35.8	.9	S	S	S	S	S
Rail	11.3	—	22.2	—	27.9	—	5.6
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	S	S	S	S	S	S	31.6
1,000 to 9,999 lb	S	S	S	S	S	S	37.5
10,000 to 49,999 lb	46.3	.1	S	S	S	S	19.9
50,000 to 99,999 lb	46.4	1.7	S	S	S	S	23.9
100,000 lb or more	10.8	1.7	22.4	.6	28.2	.7	6.9
Water	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnote at end of table.

Table B-4. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

Mode of transportation and shipment weight	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
Single modes—Con.							
Great Lakes	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Air (includes truck and air)	40.6	—	46.4	—	46.3	—	20.1
Less than 50 lb	S	S	40.5	10.9	40.9	11.1	19.5
50 to 99 lb	S	S	43.9	11.0	S	S	29.6
100 to 499 lb	S	S	S	S	S	S	26.5
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	S	S	S	S	S	S	31.6
100,000 lb or more	S	S	S	S	S	S	27.9
Pipeline³	S	S	S	S	S	S	S
Less than 50 lb	S	S	S	S	S	S	S
50 to 99 lb	S	S	S	S	S	S	S
100 to 499 lb	S	S	S	S	S	S	S
500 to 749 lb	S	S	S	S	S	S	S
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	S
10,000 to 49,999 lb	S	S	S	S	S	S	S
50,000 to 99,999 lb	S	S	S	S	S	S	S
100,000 lb or more	S	S	S	S	S	S	S
Multiple modes	17.4	—	S	S	S	S	14.1
Less than 50 lb	16.6	3.4	18.2	9.1	15.5	6.3	14.3
50 to 99 lb	21.6	1.6	31.7	2.7	32.7	3.4	21.5
100 to 499 lb	38.7	2.2	37.8	4.4	30.9	3.5	32.2
500 to 749 lb	S	S	46.4	2.2	49.9	1.3	40.0
750 to 999 lb	S	S	S	S	S	S	27.4
1,000 to 9,999 lb	S	S	43.9	1.1	S	S	S
10,000 to 49,999 lb	S	S	35.1	7.0	33.5	13.3	26.8
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	31.8
Parcel, U.S. Postal Service or courier	18.3	—	27.3	—	19.5	—	14.1
Less than 50 lb	16.6	3.7	18.3	5.8	15.5	7.9	14.3
50 to 99 lb	21.6	1.8	31.7	3.7	32.7	4.5	21.5
100 to 499 lb	38.7	2.2	37.9	3.6	30.9	4.3	32.0
500 to 749 lb	S	S	47.4	3.1	49.9	2.4	39.9
750 to 999 lb	S	S	S	S	S	S	27.4
1,000 to 9,999 lb	S	S	S	S	S	S	S
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Truck and rail	S	S	38.7	—	48.7	—	22.7
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	S	S	39.1	15.7	40.8	16.2	26.0
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	43.7	15.7	S	S	34.2
Truck and water	S	S	S	S	S	S	29.8
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	31.6
10,000 to 49,999 lb	S	S	S	S	S	S	31.6
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnote at end of table.

Table B-4. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

Mode of transportation and shipment weight	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
Multiple modes—Con.							
Rail and water	S	S	S	S	S	S	29.8
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	29.8
Other multiple modes	S	S	S	S	S	S	31.6
Less than 50 lb	S	S	S	S	S	S	31.6
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	S	S	S	S	S	S	31.6
500 to 749 lb	S	S	S	S	S	S	31.6
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	31.6
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Other and unknown modes	14.9	—	S	S	45.8	—	49.3
Less than 50 lb	33.1	6.7	31.6	5.1	44.0	9	37.2
50 to 99 lb	47.2	2.1	37.0	1.4	27.3	3	S
100 to 499 lb	32.0	4.6	39.3	3.0	S	S	S
500 to 749 lb	S	S	S	S	S	S	34.1
750 to 999 lb	S	S	S	S	S	S	33.0
1,000 to 9,999 lb	S	S	S	S	23.5	12.8	S
10,000 to 49,999 lb	S	S	S	S	S	S	28.5
50,000 to 99,999 lb	S	S	S	S	S	S	30.0
100,000 lb or more	47.6	9.1	S	S	S	S	32.4

— Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-5a. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity for State of Origin: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code	Commodity 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	3.4	—	8.0	—	24.7	—	32.0
01	Live animals and live fish	S	S	S	S	S	S	31.6
02	Cereal grains	31.9	1.1	33.4	1.6	48.4	5.6	S
03	Other agricultural products	S	S	S	S	S	S	42.6
04	Animal feed and products of animal origin, n.e.c.	S	S	S	S	36.6	—	38.8
05	Meat, fish, seafood, and their preparations	40.4	.3	46.6	—	46.7	—	48.7
06	Milled grain products and preparations, and bakery products	32.6	.7	28.1	.1	31.6	.3	27.4
07	Other prepared foodstuffs and fats and oils	29.4	1.2	25.6	.3	32.7	.2	26.4
08	Alcoholic beverages	10.2	.2	13.0	—	23.1	—	9.1
09	Tobacco products	27.9	.2	21.7	—	24.2	—	13.0
10	Monumental or building stone	S	S	S	S	S	S	31.6
11	Natural sands	S	S	S	S	S	S	31.6
12	Gravel and crushed stone	41.4	—	44.1	1.0	43.2	—	23.6
13	Nonmetallic minerals n.e.c.	39.3	.4	S	S	S	S	32.5
14	Metallic ores and concentrates	S	S	S	S	S	S	39.8
15	Coal	15.4	.8	8.6	3.0	26.3	10.5	S
17	Gasoline and aviation turbine fuel	17.9	2.4	19.5	1.4	22.6	.6	12.0
18	Fuel oils	26.4	1.5	25.3	.8	43.4	.7	23.3
19	Coal and petroleum products, n.e.c.	19.4	.6	27.6	.7	47.5	.7	S
20	Basic chemicals	17.3	.2	42.9	.2	S	.6	S
21	Pharmaceutical products	S	S	S	S	S	S	25.8
22	Fertilizers	S	S	44.2	.2	S	S	S
23	Chemical products and preparations, n.e.c.	21.4	.3	S	S	44.3	.1	S
24	Plastics and rubber	33.7	.4	43.5	—	27.6	—	43.9
25	Logs and other wood in the rough	S	S	S	S	S	S	S
26	Wood products	15.2	1.4	23.4	.8	27.9	2.9	13.7
27	Pulp, newsprint, paper, and paperboard	41.8	.9	45.1	.3	46.0	1.4	25.1
28	Paper or paperboard articles	25.2	—	21.2	—	28.7	—	32.4
29	Printed products	19.1	—	30.4	—	34.0	—	24.1
30	Textiles, leather, and articles of textiles or leather	30.1	.4	S	S	23.9	—	14.4
31	Nonmetallic mineral products	32.1	.4	32.0	.6	46.4	1.2	S
32	Base metal in primary or semifinished forms and in finished basic shapes	39.8	.7	41.5	—	S	S	S
33	Articles of base metal	35.0	.7	38.7	—	48.3	.2	S
34	Machinery	19.7	.6	27.5	—	35.5	—	S
35	Electronic and other electrical equipment and components and office equipment	26.0	.6	37.9	—	30.8	—	S
36	Motorized and other vehicles (including parts)	12.0	.5	26.1	—	8.1	—	S
37	Transportation equipment, n.e.c.	—	—	—	—	—	—	—
38	Precision instruments and apparatus	38.1	.8	30.1	—	38.4	—	27.4
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	S	S	S	S	S	31.0
40	Miscellaneous manufactured products	20.8	1.4	28.3	—	36.3	—	26.4
41	Waste and scrap	S	S	S	S	S	S	31.3
43	Mixed freight	12.1	.9	14.8	—	25.8	.3	7.6
--	Commodity unknown	S	S	27.8	—	S	S	35.9

— Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-5b. Estimated Standard Errors for Shipment Characteristics by Two-Digit Commodity for State of Origin: Percent of Total for 2002 and 1997

[Estimates are shown as percents and are based on data from the 2002 and 1997 Commodity Flow Surveys]

SCTG code	Commodity description	Value (percent)		Tons (percent)		Ton-miles ¹ (percent)	
		2002	1997	2002	1997	2002	1997
	Total	-	-	-	-	-	-
01	Live animals and live fish	S	S	S	S	S	S
02	Cereal grains	1.1	1.3	1.6	1.7	5.6	3.8
03	Other agricultural products	S	.8	S	S	S	-
04	Animal feed and products of animal origin, n.e.c.	S	.3	S	.1	-	-
05	Meat, fish, seafood, and their preparations .....	.3	S	-	S	-	S
06	Milled grain products and preparations, and bakery products .....	.7	.7	.1	.2	.3	.6
07	Other prepared foodstuffs and fats and oils	1.2	1.4	.3	.3	.2	.2
08	Alcoholic beverages .....	.2	.8	-	-	-	-
09	Tobacco products .....	.2	S	-	S	-	S
10	Monumental or building stone	S	-	S	-	S	-
11	Natural sands	S	S	S	S	S	S
12	Gravel and crushed stone	-	-	1.0	S	-	S
13	Nonmetallic minerals n.e.c. ....	.4	.1	S	.4	S	.7
14	Metallic ores and concentrates	S	.9	S	.2	S	.5
15	Coal .....	.8	.9	3.0	5.2	10.5	11.5
17	Gasoline and aviation turbine fuel	2.4	2.4	1.4	1.3	.6	.1
18	Fuel oils	1.5	1.2	.8	1.0	.7	.2
19	Coal and petroleum products, n.e.c. ....	.6	1.4	.7	2.3	.7	4.8
20	Basic chemicals .....	.2	.2	.2	.2	.6	1.5
21	Pharmaceutical products	S	S	S	S	S	S
22	Fertilizers	S	.5	.2	S	S	S
23	Chemical products and preparations, n.e.c. ....	.3	1.1	S	S	.1	-
24	Plastics and rubber .....	.4	.3	-	-	-	-
25	Logs and other wood in the rough	S	-	S	.1	S	-
26	Wood products	1.4	.9	.8	.3	2.9	1.2
27	Pulp, newsprint, paper, and paperboard .....	.9	.8	.3	S	1.4	S
28	Paper or paperboard articles	-	S	-	S	-	S
29	Printed products	-	-	-	-	-	S
30	Textiles, leather, and articles of textiles or leather .....	.4	.2	S	-	-	-
31	Nonmetallic mineral products .....	.4	.4	.6	1.1	1.2	.2
32	Base metal in primary or semifinished forms and in finished basic shapes .....	.7	1.0	-	.2	S	.3
33	Articles of base metal .....	.7	.3	-	S	.2	S
34	Machinery .....	.6	1.0	-	-	-	-
35	Electronic and other electrical equipment and components and office equipment .....	.6	.8	-	-	-	-
36	Motorized and other vehicles (including parts) .....	.5	.4	-	-	-	-
37	Transportation equipment, n.e.c.	-	S	-	S	-	S
38	Precision instruments and apparatus .....	.8	.3	-	-	-	S
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	-	S	-	S	-
40	Miscellaneous manufactured products	1.4	.7	-	-	-	S
41	Waste and scrap	S	S	S	-	S	-
43	Mixed freight .....	.9	1.1	-	-	.3	-
--	Commodity unknown	S	-	-	S	S	-

- Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
ALL COMMODITIES							
Total	3.4	—	8.0	—	24.7	—	32.0
Single modes	3.7	1.5	14.2	7.6	26.1	2.5	43.8
Truck	5.8	3.0	13.2	3.0	13.0	5.5	38.5
For-hire truck	11.2	2.1	14.9	1.3	18.1	3.7	12.3
Private truck	7.3	2.8	17.7	2.7	13.3	1.9	28.8
Rail	11.3	1.9	22.2	9.5	27.9	6.3	5.6
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	40.6	1.3	46.4	—	46.3	—	20.1
Pipeline	S	S	S	S	S	S	S
Multiple modes	17.4	1.5	S	S	S	S	14.1
Parcel, U.S. Postal Service or courier	18.3	1.5	27.3	—	19.5	—	14.1
Truck and rail	S	S	38.7	—	48.7	—	22.7
Truck and water	S	S	S	S	S	S	29.8
Rail and water	S	S	S	S	S	S	29.8
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	14.9	.5	S	S	45.8	1.1	49.3
SCTG 01, LIVE ANIMALS AND LIVE FISH							
Total	S	S	S	S	S	S	31.6
Single modes	S	S	S	S	S	S	31.6
Truck	S	S	S	S	S	S	31.6
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	31.6
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 02, CEREAL GRAINS							
Total	31.9	—	33.4	—	48.4	—	S
Single modes	32.1	.8	33.6	.6	48.4	.2	39.6
Truck	38.7	10.5	36.4	10.8	36.6	10.4	42.0
For-hire truck	45.0	10.6	41.3	10.8	38.8	10.4	26.1
Private truck	46.7	4.5	43.4	4.3	S	S	S
Rail	45.0	10.9	46.1	11.0	S	S	16.9
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 03, OTHER AGRICULTURAL PRODUCTS							
Total	S	S	S	S	S	S	42.6
Single modes	S	S	S	S	S	S	42.6
Truck	S	S	S	S	S	S	42.6
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	42.6
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 04, ANIMAL FEED AND PRODUCTS OF ANIMAL ORIGIN, N.E.C.							
Total	S	S	S	S	36.6	—	38.8
Single modes	S	S	S	S	36.7	2.8	27.4
Truck	S	S	S	S	S	S	15.8
For-hire truck	S	S	S	S	S	S	25.8
Private truck	S	S	S	S	S	S	18.4
Rail	35.6	8.3	39.3	8.8	S	S	S
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	31.6
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	S	S	S	S	48.5	2.6	S
SCTG 05, MEAT, FISH, SEAFOOD, AND THEIR PREPARATIONS							
Total	40.4	—	46.6	—	46.7	—	48.7
Single modes	41.5	2.6	47.2	2.2	46.1	1.5	S
Truck	46.0	9.9	49.8	10.1	S	S	32.4
For-hire truck	S	S	S	S	S	S	30.7
Private truck	S	S	S	S	S	S	32.9
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	31.6
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	31.6
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6

See footnote at end of table.

Table B-6. **Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 06, MILLED GRAIN PRODUCTS AND PREPARATIONS, AND BAKERY PRODUCTS							
Total	32.6	—	28.1	—	31.6	—	27.4
Single modes	33.5	3.7	28.3	2.5	31.8	9.5	39.2
Truck	35.4	4.1	28.4	4.3	32.2	9.4	39.2
For-hire truck	34.3	11.3	33.5	12.7	33.1	16.1	21.4
Private truck	S	S	31.7	13.7	31.5	13.9	27.3
Rail	S	S	S	S	S	S	30.3
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	30.2
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	30.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6
SCTG 07, OTHER PREPARED FOODSTUFFS AND FATS AND OILS							
Total	29.4	—	25.6	—	32.7	—	28.4
Single modes	29.9	1.8	26.4	2.7	32.8	1.7	28.8
Truck	33.0	6.7	28.5	8.1	25.4	15.8	25.5
For-hire truck	46.9	8.1	27.9	9.7	33.3	10.0	22.6
Private truck	36.9	12.0	30.9	13.0	37.4	14.1	22.1
Rail	36.4	6.8	37.3	8.2	41.0	16.4	24.4
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	31.6
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	31.6
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	25.9
SCTG 08, ALCOHOLIC BEVERAGES							
Total	10.2	—	13.0	—	23.1	—	9.1
Single modes	10.2	—	13.0	—	23.2	—	9.1
Truck	10.2	—	13.0	—	23.2	—	9.1
For-hire truck	S	S	S	S	S	S	32.7
Private truck	10.7	2.0	13.4	2.3	25.9	6.7	9.3
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 09, TOBACCO PRODUCTS							
Total	27.9	—	21.7	—	24.2	—	13.0
Single modes	27.8	1.4	21.8	1.0	24.4	.7	13.0
Truck	27.8	1.4	21.8	1.0	24.4	.7	13.0
For-hire truck	S	S	S	S	S	S	31.6
Private truck	27.8	1.4	21.8	1.0	24.4	.7	13.0
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	31.4
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	31.4
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 10, MONUMENTAL OR BUILDING STONE							
Total	S	S	S	S	S	S	31.6
Single modes	S	S	S	S	S	S	31.6
Truck	S	S	S	S	S	S	31.6
For-hire truck	S	S	S	S	S	S	31.6
Private truck	—	—	—	—	—	—	—
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 11, NATURAL SANDS							
Total	S	S	S	S	S	S	31.6
Single modes	S	S	S	S	S	S	31.6
Truck	S	S	S	S	S	S	31.6
For-hire truck	S	S	S	S	S	S	31.6
Private truck	—	—	—	—	—	—	—
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 12, GRAVEL AND CRUSHED STONE							
Total	41.4	—	44.1	—	43.2	—	23.6
Single modes	41.4	—	44.1	—	43.2	—	23.6
Truck	41.4	—	44.1	—	43.2	—	23.6
For-hire truck	S	S	S	S	S	S	32.4
Private truck	42.0	2.2	44.5	1.8	43.8	3.3	23.3
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 13, NONMETALLIC MINERALS N.E.C.							
Total	39.3	—	S	S	S	S	32.5
Single modes	40.4	3.1	S	S	S	S	31.7
Truck	44.7	11.7	33.2	16.3	40.0	18.4	28.8
For-hire truck	S	S	41.1	16.8	S	S	26.6
Private truck	S	S	S	S	S	S	S
Rail	34.9	10.9	S	S	S	S	21.9
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	30.0
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	30.0
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	28.5
SCTG 14, METALLIC ORES AND CONCENTRATES							
Total	S	S	S	S	S	S	39.8
Single modes	S	S	S	S	S	S	49.9
Truck	S	S	S	S	S	S	S
For-hire truck	35.8	14.3	S	S	S	S	43.7
Private truck	S	S	S	S	S	S	40.5
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	31.3
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	31.3
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 15, COAL							
Total	15.4	—	8.6	—	26.3	—	S
Single modes	25.2	12.0	21.0	12.1	28.4	11.2	S
Truck	S	S	S	S	S	S	27.9
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	27.9
Rail	27.8	13.8	23.7	13.6	28.5	12.7	16.2
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	29.8
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	29.8
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	27.9
SCTG 17, GASOLINE AND AVIATION TURBINE FUEL							
Total	17.9	—	19.5	—	22.6	—	12.0
Single modes	18.0	—	19.5	—	22.6	—	12.0
Truck	18.7	8.2	22.3	8.7	28.6	9.2	12.4
For-hire truck	45.9	7.0	45.7	7.3	46.2	6.0	S
Private truck	22.1	8.6	27.4	9.3	37.8	11.4	13.5
Rail	S	S	S	S	S	S	30.7
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	29.8
SCTG 18, FUEL OILS							
Total	26.4	—	25.3	—	43.4	—	23.3
Single modes	26.4	—	25.3	—	43.4	—	23.4
Truck	27.1	1.6	26.2	2.1	45.3	5.6	23.5
For-hire truck	S	S	S	S	S	S	S
Private truck	30.2	8.9	30.2	8.8	S	S	23.3
Rail	S	S	S	S	S	S	29.8
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 19, COAL AND PETROLEUM PRODUCTS, N.E.C.							
Total	19.4	—	27.6	—	47.5	—	S
Single modes	19.5	.4	27.6	—	47.5	—	S
Truck	22.5	8.8	19.6	12.6	S	S	S
For-hire truck	46.5	12.3	46.0	14.0	48.3	16.2	22.9
Private truck	29.3	11.5	29.3	10.8	41.5	14.7	S
Rail	S	S	S	S	S	S	26.0
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	48.4	—	S	S	33.7
Parcel, U.S. Postal Service or courier	S	S	48.4	—	S	S	33.7
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 20, BASIC CHEMICALS							
Total	17.3	—	42.9	—	S	S	S
Single modes	17.3	.3	43.0	.2	S	S	S
Truck	17.5	3.2	25.2	17.1	S	S	S
For-hire truck	22.8	9.9	28.5	15.7	S	S	38.6
Private truck	41.8	7.9	S	S	30.4	2.1	S
Rail	S	S	S	S	S	S	28.1
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	29.9
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	31.6
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	31.6
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	30.8
SCTG 21, PHARMACEUTICAL PRODUCTS							
Total	S	S	S	S	S	S	25.8
Single modes	S	S	S	S	S	S	28.5
Truck	S	S	S	S	S	S	28.5
For-hire truck	S	S	S	S	S	S	29.8
Private truck	S	S	S	S	S	S	28.3
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	24.5
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	24.5
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 22, FERTILIZERS							
Total	S	S	44.2	—	S	S	S
Single modes	S	S	44.2	10.5	S	S	S
Truck	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	S
Private truck	S	S	S	S	44.2	18.3	S
Rail	S	S	S	S	S	S	31.6
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	29.8
SCTG 23, CHEMICAL PRODUCTS AND PREPARATIONS, N.E.C.							
Total	21.4	—	S	S	44.3	—	S
Single modes	23.0	11.7	S	S	46.2	14.9	37.6
Truck	23.0	11.7	S	S	46.2	14.9	37.6
For-hire truck	33.8	11.9	S	S	47.3	19.3	S
Private truck	27.4	10.8	28.4	14.8	28.8	11.2	23.6
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	25.4
SCTG 24, PLASTICS AND RUBBER							
Total	33.7	—	43.5	—	27.6	—	43.9
Single modes	48.4	11.8	S	S	39.1	12.4	19.8
Truck	48.5	11.8	S	S	39.3	12.3	20.1
For-hire truck	27.7	4.8	36.9	6.6	38.2	10.0	35.8
Private truck	S	S	S	S	S	S	16.7
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	S	S	S	S	S	S	S
Multiple modes	32.1	8.4	30.9	6.4	43.1	9.9	24.0
Parcel, U.S. Postal Service or courier	32.4	8.4	32.2	6.4	48.2	9.7	23.5
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	31.6
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	35.5	7.7	24.6	6.0	S	S	S

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 25, LOGS AND OTHER WOOD IN THE ROUGH							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	S
Truck	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	29.4
Private truck	S	S	S	S	S	S	S
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	31.6
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	S	S	S	S	S	S	31.6
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 26, WOOD PRODUCTS							
Total	15.2	-	23.4	-	27.9	-	13.7
Single modes	15.4	2.0	23.2	.9	27.9	2.2	12.2
Truck	9.0	4.6	28.8	6.0	40.0	5.4	14.3
For-hire truck	11.9	5.6	37.1	7.1	44.9	5.9	14.1
Private truck	21.1	3.5	36.0	5.8	47.4	4.1	21.9
Rail	28.8	5.4	30.3	6.1	31.9	5.5	5.9
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	S	S	S	S	S	S	30.1
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	45.8	1.3	S	S	S	S	S
SCTG 27, PULP, NEWSPRINT, PAPER, AND PAPERBOARD							
Total	41.8	-	45.1	-	46.0	-	25.1
Single modes	43.5	13.0	45.2	7.5	46.1	11.9	30.0
Truck	43.6	12.6	48.2	15.1	47.3	15.4	40.9
For-hire truck	49.0	8.7	S	S	47.6	9.4	24.5
Private truck	40.0	13.6	42.4	16.4	39.1	15.4	44.9
Rail	46.8	17.6	47.0	19.1	S	S	26.1
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	28.8
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	28.8
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	31.6

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 28, PAPER OR PAPERBOARD ARTICLES							
Total	25.2	—	21.2	—	28.7	—	32.4
Single modes	26.0	11.6	24.5	11.5	33.5	10.4	29.8
Truck	26.0	11.6	24.5	11.5	33.5	10.4	29.8
For-hire truck	48.9	3.8	48.0	3.1	35.9	7.0	31.0
Private truck	26.3	10.9	25.0	10.7	40.3	9.3	34.1
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	43.2	.2	36.3	.2	29.1
SCTG 29, PRINTED PRODUCTS							
Total	19.1	—	30.4	—	34.0	—	24.1
Single modes	23.6	8.7	32.5	8.0	48.0	9.1	S
Truck	23.6	8.7	32.5	8.0	48.2	9.1	S
For-hire truck	36.9	6.7	44.1	9.3	50.0	10.1	26.4
Private truck	37.9	8.9	40.3	9.3	49.2	2.6	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	25.4	9.6	36.0	9.1	35.2	10.5	17.7
Parcel, U.S. Postal Service or courier	25.4	9.6	36.0	9.1	35.2	10.5	17.7
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	25.3	9.2	41.6	6.8	S	S	S
SCTG 30, TEXTILES, LEATHER, AND ARTICLES OF TEXTILES OR LEATHER							
Total	30.1	—	S	S	23.9	—	14.4
Single modes	37.0	8.1	35.4	11.1	43.4	11.4	28.3
Truck	32.8	7.8	36.8	10.9	43.6	11.1	29.7
For-hire truck	49.9	6.3	49.3	8.4	S	S	26.3
Private truck	S	S	49.4	9.4	S	S	34.7
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	29.8
Pipeline	—	—	—	—	S	S	S
Multiple modes	36.4	8.1	S	S	32.1	11.0	15.2
Parcel, U.S. Postal Service or courier	36.4	8.1	S	S	32.1	11.0	15.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	35.5	.8	S	S	S	S	S

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 31, NONMETALLIC MINERAL PRODUCTS							
Total	32.1	—	32.0	—	46.4	—	S
Single modes	33.0	9.7	32.1	3.8	46.5	10.4	48.6
Truck	36.8	8.2	31.0	4.8	36.1	10.3	S
For-hire truck	34.5	9.4	41.8	9.3	43.1	9.4	21.5
Private truck	43.2	10.3	34.5	8.7	39.4	9.0	S
Rail	41.2	5.3	44.1	6.6	S	S	22.5
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	29.1
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	29.1
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	27.3
SCTG 32, BASE METAL IN PRIMARY OR SEMIFINISHED FORMS AND IN FINISHED BASIC SHAPES							
Total	39.8	—	41.5	—	S	S	S
Single modes	43.3	13.2	42.2	14.2	S	S	S
Truck	46.9	8.7	S	S	S	S	29.2
For-hire truck	S	S	S	S	S	S	S
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	28.2
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	40.0	11.9	42.4	12.5	S	S	22.8
Parcel, U.S. Postal Service or courier	40.0	11.9	42.4	12.5	S	S	22.8
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 33, ARTICLES OF BASE METAL							
Total	35.0	—	38.7	—	48.3	—	S
Single modes	39.8	6.5	39.3	1.0	48.3	.3	S
Truck	39.8	6.5	39.4	1.2	48.4	.3	S
For-hire truck	S	S	S	S	S	S	31.1
Private truck	25.0	8.7	31.5	13.1	21.0	14.2	S
Rail	S	S	S	S	S	S	31.6
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	35.8	6.7	37.2	.7	S	S	30.3
Parcel, U.S. Postal Service or courier	35.8	6.7	37.2	.7	S	S	30.3
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	43.5

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 34, MACHINERY							
Total	19.7	—	27.5	—	35.5	—	S
Single modes	28.1	9.5	30.8	8.5	42.4	9.6	S
Truck	28.9	9.8	30.9	8.6	43.0	9.4	S
For-hire truck	40.2	8.8	S	S	S	S	23.6
Private truck	40.1	9.0	42.7	11.3	45.6	9.8	28.5
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.7
Pipeline	—	—	—	—	S	S	S
Multiple modes	34.1	5.3	42.5	1.8	47.3	5.2	17.1
Parcel, U.S. Postal Service or courier	34.1	5.3	42.5	1.8	47.3	5.2	17.1
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	36.5	9.1	28.5	8.6	S	S	43.6
SCTG 35, ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONENTS AND OFFICE EQUIPMENT							
Total	26.0	—	37.9	—	30.8	—	S
Single modes	39.7	6.6	44.0	11.4	36.5	11.7	S
Truck	39.8	6.7	44.0	11.4	36.5	11.8	S
For-hire truck	25.9	7.1	47.9	12.5	46.1	12.3	S
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	28.5
Pipeline	—	—	—	—	S	S	S
Multiple modes	27.1	7.7	39.8	8.7	27.6	9.6	14.5
Parcel, U.S. Postal Service or courier	27.1	7.7	39.8	8.7	27.6	9.6	14.5
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 36, MOTORIZED AND OTHER VEHICLES (INCLUDING PARTS)							
Total	12.0	—	26.1	—	8.1	—	S
Single modes	16.7	7.9	32.1	8.3	11.9	5.1	S
Truck	16.7	7.9	32.1	8.3	11.8	5.0	S
For-hire truck	38.8	7.0	36.7	8.5	30.8	8.3	19.5
Private truck	24.4	8.8	40.5	10.7	19.4	9.6	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	27.2	3.7	49.9	1.1	28.0	2.3	31.5
Parcel, U.S. Postal Service or courier	27.2	3.7	49.9	1.1	28.0	2.3	31.5
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	41.7	4.4	S

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 37, TRANSPORTATION EQUIPMENT, N.E.C.							
Total	-	-	-	-	-	-	-
Single modes	-	-	-	-	-	-	-
Truck	-	-	-	-	-	-	-
For-hire truck	-	-	-	-	-	-	-
Private truck	-	-	-	-	-	-	-
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	S	S	S
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 38, PRECISION INSTRUMENTS AND APPARATUS							
Total	38.1	-	30.1	-	38.4	-	27.4
Single modes	S	S	S	S	S	S	S
Truck	S	S	S	S	S	S	36.4
For-hire truck	-	-	-	-	-	-	-
Private truck	S	S	S	S	S	S	36.4
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	-	-	-	-	S	S	S
Multiple modes	41.9	10.0	36.9	10.3	38.8	10.2	23.3
Parcel, U.S. Postal Service or courier	41.9	10.0	36.9	10.3	38.8	10.2	23.3
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	31.6
SCTG 39, FURNITURE, MATTRESSES AND MATTRESS SUPPORTS, LAMPS, LIGHTING FITTINGS, AND ILLUMINATED SIGNS							
Total	S	S	S	S	S	S	31.0
Single modes	S	S	S	S	S	S	32.9
Truck	S	S	S	S	S	S	32.9
For-hire truck	S	S	S	S	S	S	29.9
Private truck	S	S	S	S	S	S	37.1
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	26.0
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	26.0
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	31.6

See footnote at end of table.

Table B-6. Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 40, MISCELLANEOUS MANUFACTURED PRODUCTS							
Total	20.8	—	28.3	—	36.3	—	26.4
Single modes	26.2	7.3	34.7	7.6	41.5	9.8	23.4
Truck	17.4	8.2	20.8	9.4	19.4	12.2	24.9
For-hire truck	20.7	6.7	20.3	7.6	19.1	11.5	15.5
Private truck	24.1	5.8	34.7	6.8	44.8	2.6	25.5
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	26.0
Pipeline	—	—	—	—	S	S	S
Multiple modes	30.8	7.2	31.8	7.5	33.3	9.8	34.2
Parcel, U.S. Postal Service or courier	30.8	7.2	31.8	7.5	33.3	9.8	34.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	30.5	.3	S	S	41.3
SCTG 41, WASTE AND SCRAP							
Total	S	S	S	S	S	S	31.3
Single modes	S	S	S	S	S	S	31.3
Truck	S	S	S	S	S	S	31.3
For-hire truck	S	S	S	S	S	S	31.3
Private truck	—	—	—	—	—	—	—
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 43, MIXED FREIGHT							
Total	12.1	—	14.8	—	25.8	—	7.6
Single modes	11.9	.7	14.8	—	25.9	.2	8.7
Truck	11.9	.7	14.8	—	25.9	.2	8.7
For-hire truck	31.8	2.5	S	—	S	S	35.1
Private truck	12.8	2.8	14.1	2.5	23.6	6.8	9.4
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	S	S	S	S	S	S	S
Multiple modes	33.4	.6	37.7	—	39.0	.2	23.4
Parcel, U.S. Postal Service or courier	33.4	.6	37.7	—	39.0	.2	23.4
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	41.5	.2	S	S	S	S	S

See footnote at end of table.

Table B-6. **Estimated Measures of Reliability for Shipment Characteristics by Two-Digit Commodity and Mode of Transportation for State of Origin: 2002—Con.**

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
COMMODITY UNKNOWN							
Total	S	S	27.8	—	S	S	35.9
Single modes	49.5	12.2	27.9	10.5	S	S	23.5
Truck	49.5	12.2	27.9	10.5	S	S	23.5
For-hire truck	42.2	12.4	48.1	15.2	S	S	25.1
Private truck	S	S	42.6	14.6	S	S	37.8
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	44.6
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	44.6
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

— Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-7. Estimated Measures of Reliability for Outbound Shipment Characteristics by State of Destination for State of Origin: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

State of destination	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
Total	3.4	—	8.0	—	24.7	—
NEW ENGLAND STATES						
Connecticut	34.1	—	48.1	—	48.4	—
Maine	S	S	S	S	S	S
Massachusetts	28.6	—	49.4	—	48.9	.2
New Hampshire	S	S	S	S	S	S
Rhode Island	S	S	S	S	S	S
Vermont	S	S	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	38.6	1.1	18.4	—	19.5	.1
New York	33.6	.2	S	S	S	S
Pennsylvania	31.1	.2	S	S	S	S
EAST NORTH CENTRAL STATES						
Illinois	29.0	.6	31.8	2.0	30.6	2.7
Indiana	20.2	.1	45.9	.6	44.5	.8
Michigan	45.6	.4	S	S	S	S
Ohio	23.6	.1	37.3	—	37.1	.4
Wisconsin	30.3	.7	38.9	5.4	37.9	6.0
WEST NORTH CENTRAL STATES						
Iowa	23.8	—	32.0	—	30.5	.2
Kansas	32.6	—	30.9	—	32.1	—
Minnesota	23.0	.4	29.4	3.8	32.6	5.7
Missouri	24.6	.2	35.3	—	34.3	.4
Nebraska	32.7	.1	40.2	—	41.9	.1
North Dakota	16.6	.2	16.1	.1	23.5	.5
South Dakota	27.0	.5	32.2	.1	39.3	.1
SOUTH ATLANTIC STATES						
Delaware	S	S	S	S	S	S
District of Columbia	S	S	S	S	S	S
Florida	29.6	.1	S	S	S	S
Georgia	35.9	—	S	S	S	S
Maryland	31.4	—	43.6	—	44.3	—
North Carolina	42.2	.2	32.7	—	33.2	.2
South Carolina	S	S	44.2	—	44.8	.1
Virginia	29.4	—	S	S	S	S
West Virginia	35.9	—	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	S	S	S	S	S	S
Kentucky	S	S	S	S	S	S
Mississippi	S	S	S	S	S	S
Tennessee	29.5	—	32.6	—	33.5	—
WEST SOUTH CENTRAL STATES						
Arkansas	37.6	.1	41.9	—	40.1	.1
Louisiana	28.5	—	S	S	S	S
Oklahoma	17.3	—	19.6	—	21.0	—
Texas	23.8	.3	S	S	S	S
MOUNTAIN STATES						
Arizona	24.3	.1	36.1	.1	35.9	.4
Colorado	20.4	.3	39.7	—	45.4	.2
Idaho	18.9	.5	30.7	.4	28.6	.1
Montana	6.6	2.8	23.7	10.5	19.9	3.0
Nevada	23.5	.2	S	S	S	S
New Mexico	25.3	—	36.2	—	36.4	—
Utah	20.1	.3	39.0	.2	42.2	.2
Wyoming	15.9	.8	30.4	.3	43.0	1.0
PACIFIC STATES						
Alaska	S	S	45.7	—	S	S
California	18.0	1.0	33.9	.8	40.5	4.3
Hawaii	S	S	S	S	S	S
Oregon	27.4	.7	27.4	.9	29.9	2.4
Washington	15.2	.4	S	S	S	S

— Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-8. Estimated Measures of Reliability for Inbound Shipment Characteristics by State of Origin for State of Destination: 2002

[Estimates are shown as percents and are based on data from the 2002 Commodity Flow Survey]

State of origin	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	5.9	—	19.7	—	10.9	—
NEW ENGLAND STATES						
Connecticut	S	S	S	S	S	S
Maine	S	S	S	S	S	S
Massachusetts	S	S	S	S	S	S
New Hampshire	28.5	—	35.8	—	35.0	—
Rhode Island	S	S	S	S	S	S
Vermont	42.6	—	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	S	S	S	S	S	S
New York	32.9	.3	S	S	S	S
Pennsylvania	29.2	.3	33.6	—	33.5	.2
EAST NORTH CENTRAL STATES						
Illinois	22.1	.5	37.9	.2	36.0	.9
Indiana	S	S	45.1	.1	43.3	.9
Michigan	39.9	.5	36.4	—	35.9	.3
Ohio	S	S	S	S	S	S
Wisconsin	S	S	24.0	.1	25.5	.4
WEST NORTH CENTRAL STATES						
Iowa	25.1	.6	32.6	.1	30.2	.7
Kansas	30.6	.3	39.7	—	40.0	.4
Minnesota	26.5	.4	S	S	S	S
Missouri	37.4	.5	28.8	—	30.2	.3
Nebraska	25.3	.2	S	S	47.4	.4
North Dakota	25.3	.5	17.3	.2	20.0	.4
South Dakota	13.8	—	28.3	—	29.9	—
SOUTH ATLANTIC STATES						
Delaware	39.1	—	45.9	—	45.6	—
District of Columbia	S	S	S	S	S	S
Florida	27.6	.2	S	S	S	S
Georgia	31.4	.2	42.9	—	43.8	.5
Maryland	37.9	—	30.0	—	29.8	—
North Carolina	34.1	.2	S	S	S	S
South Carolina	32.0	—	47.9	—	48.3	.3
Virginia	S	S	S	S	S	S
West Virginia	47.7	—	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	S	S	S	S	S	S
Kentucky	32.6	.1	S	S	S	S
Mississippi	47.4	—	S	S	S	S
Tennessee	31.1	.7	49.2	.1	47.8	.7
WEST SOUTH CENTRAL STATES						
Arkansas	S	S	25.2	—	25.3	.2
Louisiana	S	S	S	S	S	S
Oklahoma	S	S	34.0	—	33.6	.5
Texas	30.5	1.4	21.4	.5	22.5	1.8
MOUNTAIN STATES						
Arizona	44.9	.2	S	S	S	S
Colorado	19.8	.8	S	S	47.5	1.3
Idaho	12.3	.2	22.7	.6	17.0	.6
Montana	6.6	2.1	23.7	5.3	19.9	3.2
Nevada	40.1	.6	23.7	—	23.1	.3
New Mexico	44.2	—	S	S	S	S
Utah	14.2	.5	22.2	.8	26.8	1.4
Wyoming	18.2	.2	48.9	.7	43.0	1.6
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	28.5	1.8	S	S	S	S
Hawaii	—	—	—	—	—	—
Oregon	20.5	.6	21.8	.4	19.7	.7
Washington	13.4	1.5	23.0	.9	26.8	1.3

— Represents data cell equal to zero or less than 1 unit of measure.
 S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-9. Estimated Measures of Reliability for Shipment Characteristics by Mode of Transportation for State of Origin: 2002 and 1997

[Estimates are shown as percents and are based on data from the 2002 and 1997 Commodity Flow Surveys]

Mode of transportation	Value			Tons			Ton-miles			Average miles per shipment		
	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change
	2002	1997		2002	1997		2002	1997		2002	1997	
Total	3.4	7.3	8.2	8.0	10.1	13.3	24.7	14.3	26.3	32.0	12.7	31.3
Single modes	3.7	8.0	9.2	14.2	11.5	18.6	26.1	14.3	26.3	43.8	13.0	30.5
Truck	5.8	10.6	13.8	13.2	13.2	22.1	13.0	13.6	26.5	38.5	11.6	30.6
Rail	11.3	7.7	9.1	22.2	15.7	26.4	27.9	15.5	27.4	5.6	7.2	9.9
Water	-	-	-	-	-	-	-	-	-	-	-	-
Air (includes truck and air)	40.6	S	S	46.4	S	S	46.3	S	S	20.1	4.4	25.2
Pipeline	S	S	S	S	S	S	S	S	S	S	S	S
Multiple modes	17.4	11.1	20.4	S	27.2	S	S	28.1	S	14.1	10.6	18.2
Parcel, U.S. Postal Service or courier ..	18.3	13.0	26.3	27.3	13.4	48.5	19.5	15.1	38.3	14.1	10.6	18.2
Truck and rail	S	16.5	S	38.7	31.0	7.8	48.7	28.9	14.1	22.7	11.1	23.4
All other multiple modes	S	S	S	S	47.0	S	S	S	S	S	27.4	S
Other and unknown modes ...	14.9	21.3	19.0	S	40.1	S	45.8	S	S	49.3	30.5	89.1

- Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Table B-10. Estimated Measures of Reliability for Shipment Characteristics by Commodity Group for State of Origin: 2002 and 1997

[Estimates are shown as percents and are based on data from the 2002 and 1997 Commodity Flow Surveys]

SCTG code	Commodity description	Value			Tons			Ton-miles			Average miles per shipment		
		Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change
		2002	1997		2002	1997		2002	1997		2002	1997	
	Total	3.4	7.3	8.2	8.0	10.1	13.3	24.7	14.3	26.3	32.0	12.7	31.3
01-05	Agricultural products and fish	22.6	18.0	20.0	26.5	20.6	29.1	43.1	27.4	51.5	S	S	S
06-09	Grains, alcohol, and tobacco products	12.0	13.6	14.9	11.9	15.9	16.4	12.4	20.2	16.9	23.4	15.7	35.3
10-14	Stones, nonmetallic minerals, and metallic ores	36.8	20.2	30.5	44.3	23.4	134.2	S	18.1	S	S	S	S
15-19	Coal and petroleum products	9.8	16.6	20.1	7.4	13.6	15.7	26.0	17.6	24.4	25.6	27.9	23.0
20-24	Basic chemicals, chemical, and pharmaceutical products	16.3	25.3	20.0	28.5	30.8	24.3	42.5	42.2	34.3	28.0	20.7	31.8
25-30	Logs, wood products, and textile and leather	11.4	10.3	16.8	18.2	7.1	22.7	22.0	7.8	26.1	10.6	17.6	30.2
31-34	Base metal and machinery ..	13.2	14.3	14.2	26.0	26.9	24.3	33.3	13.5	25.9	S	22.9	S
35-38	Electronic, motorized vehicles, and precision instruments	11.9	17.0	25.8	24.7	20.7	48.8	13.1	20.5	22.9	S	26.6	S
39-43	Furniture, mixed freight and misc. manufactured prod. ..	9.4	10.2	28.1	26.8	S	S	36.7	S	S	12.0	15.9	17.1
--	Commodity unknown	S	25.1	S	27.8	S	S	S	43.3	S	35.9	21.1	57.6

- Represents data cell equal to zero or less than 1 unit of measure.
S Estimate does not meet publication standards because of high sampling variability or poor response quality.

Note: The Introduction and appendixes give information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions. Links to this information on the Internet may be found at www.census.gov/cfs.

Appendix C.

Sample Design, Data Collection, and Estimation

INTRODUCTION

The primary goal for the 2002 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 secondary objective is to estimate the volume of shipments moving from one geographic area to another (i.e., flows of commodities between states, regions, etc.) by mode and commodity. A detailed description of the sample design for the 2002 CFS is provided below.

SAMPLE DESIGN

The sample for the 2002 Commodity Flow Survey (CFS) was selected using a stratified three-stage design in which the first-stage sampling units were establishments, the second-stage sampling units were groups of four 1-week periods (reporting weeks) within the survey year, and the third-stage sampling units were shipments.

First Stage

Sampling frame

To create the first-stage sampling frame, we extracted a subset of establishment records from the Business Register (formerly the Standard Statistical Establishment List) as of September 2001. The Business Register is a database of all known establishments located in the United States or its territories. (An establishment is a single physical location where business transactions take place or services are performed.) Establishments located in the United States, having nonzero payroll in 2000, and classified in mining (except oil and gas extraction), manufacturing, wholesale, or electronic shopping and mail order retail industries, as defined by the 1997 North American Industry Classification System (NAICS), were included on the sampling frame. *Auxiliary establishments* (e.g. warehouses and central administrative offices) with shipping activity were also included on the sampling frame. 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 included on the sampling frame are referred to as *nonauxiliary establishments*.

Some portion of establishments classified in the Retail Trade sector in the 1997 Economic Census was expected to be classified in the Wholesale Trade sector in the 2002 Economic Census. Because we wanted complete coverage of the Wholesale Trade sector as defined for the 2002 Economic Census, the 2002 CFS sampling frame also included establishments that were classified in particular retail industries (automotive parts and accessories, tires, floor coverings, building materials, nursery and garden, and office supplies) in the 1997 Economic Census and had characteristics indicating that they were likely to be classified as wholesale in the 2002 Economic Census. Of the establishments selected for the 2002 CFS from this set of establishments, only those that were classified as wholesale in the 2002 Economic Census were used in the production of estimates for this report.

Establishments classified in forestry, fishing, utilities, construction, transportation, services, and all other retail industries were not included on the sampling frame. Farms and government-owned entities (except government-owned liquor stores) were also excluded from the sampling frame. The resulting frame comprised approximately 760,000 establishments.

For each establishment we extracted sales, payroll, number of employees, a six-digit NAICS code, name and address, and a primary identifier. We also computed a measure of size for each establishment. The measure of size was designed to approximate an establishment's annual total value of shipments for the year 2000.

All of the establishments included on the sampling frame had state, county, and place geographic codes. We used these codes to assign each establishment to one of the 273 metropolitan areas (MAs) defined as a combination of the metropolitan statistical areas (MSAs) and consolidated metropolitan statistical areas (CMSAs). Establishments not located in an MA were assigned to MA 9999.

Stratification

We stratified the sampling frame by geography and industry. Geographic strata were defined by a combination of the 50 states, the District of Columbia, and the top 50 metropolitan areas (MAs) based on their population in Census 2000. If a particular MA was not one of the 50 largest, then it was collapsed with the remaining MAs and non-MAs within the state in which the particular MA resided. We refer to these collapsed strata as Rest of State (ROS) strata. When an MA crossed state boundaries, we considered the size of each part of the MA relative to the MAs total measure of size when determining whether or not to create strata in each state in which the MA was defined. The industry strata were determined as follows. Within each of the geographic strata, we started with a total of 45 industry groups based on 1997 NAICS: three mining (four-digit NAICS); 21 manufacturing (three-digit NAICS); 18 wholesale (four-digit NAICS); 1 retail (NAICS 4541); and 2 auxiliary (NAICS 4931 and 5511). We then implemented a rule that states a particular industry stratum will be defined within a geographic stratum if it contributes at least 2 percent to its corresponding state total measure of size or it contributes at least 2 percent to the national total measure of size for the industry. Industry groups not meeting these criteria were combined into at most 12 new collapsed industry strata using a clustering algorithm. Because of potential differences in shipping patterns between auxiliary and nonauxiliary establishments, we created two industry strata of auxiliary establishments in every geographic stratum. We refer to a particular geographic-by-industry combination as a *primary stratum*. Also note that a separate stratum was created at the national level for those Retail Trade sector establishments that we included in our sample.

Sample size and allocation

To reduce the sampling variability of the estimates, we used a stratified design with a certainty component. Within each primary stratum, a boundary (or cutoff) that divides the certainty establishments from the noncertainty establishments was determined using the Lavallee-Hidiroglou algorithm. If an establishment's measure of size was greater than the cutoff, the establishment was selected with certainty. Establishments selected with certainty were sure to be selected and represent only themselves (i.e., had a selection probability of one and a sampling weight of one).

Because the 2002 sample was about half the size of the 1997 CFS sample, we were concerned about the ability of the sample to capture less frequent types of shipments (e.g., air, water, rail, and hazardous materials). After considering several different alternatives, we felt the best approach was to identify those establishments which made the bulk of these types of shipments in 1997 and then select them with certainty. To identify these establishments, we proceeded as follows.

We identified all establishments in the 1997 CFS sample that reported shipments made by air, water, or rail. We also identified those establishments that reported shipments of hazardous materials. For each of these establishments, we computed the percentage of the establishment's total value and tonnage accounted for by each of these types of shipments. Next, we matched these establishments to the sampling frame for the 2002 CFS and identified each establishment with measure of size less than the certainty boundary. For both value and tons, we then looked to see what percent of the total volume of shipments for each type of shipment was captured by selecting with certainty the top 50, top 100, or all establishments. We considered the top 50 establishments as those establishments making the largest volume of each type of shipment (air, water, rail, hazardous). Once these establishments were identified, we grouped them into one file and unduplicated them. This procedure added a total of about 500 certainty establishments.

Establishments not selected with certainty made up the noncertainty frame. We further stratified 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 increased the efficiency of the sample design. The Dalenius-Hodges

cumulative \sqrt{f} rule was used to set the substratum boundaries. We then used optimum allocation to determine the sample size required within each substratum to meet a coefficient of variation constraint on an estimate of the total measure of size for the primary stratum. Within each substratum, a simple random sample of establishments was selected without replacement.

To arrive at the final sample size, we allocated additional establishments to some of the strata so that the minimum substratum sample size was two and the probability of selecting any establishment was no less than 1 in 100. In total, the first-stage sample comprised 51,005 establishments.

Second Stage

The frame for the second stage of sampling consisted of 52-weeks from January 6, 2002 to January 4, 2003. Each establishment selected into the 2002 CFS sample was systematically assigned to report for four reporting weeks—one in each quarter of the reference year. Each of the 4-weeks was in the same relative position of the quarter. For example, an establishment might have been requested to report data for the 5th, 18th, 31st, and 44th weeks of the reference year. In this instance, each reporting week corresponds to the 5th week of each quarter. Prior to assignment of weeks to establishments, we sorted the selected sample by primary stratum (state x metropolitan area x industry) and measure-of-size.

Third Stage

For each of the four reporting weeks in which an establishment was asked to report, we requested the respondent to construct a sampling frame consisting of all shipments made by the establishment in the reporting week. Each respondent was asked to count or estimate the total number of shipments comprising the sampling frame and to record this number on the questionnaire. For each assigned reporting week, if an establishment made *more than 40* shipments during that week, we asked the respondent to select a systematic sample of the establishment's shipments and to provide us with information only about the selected shipments. If an establishment made *40 or fewer* shipments during that week, we asked the respondent to provide information about *all* of the establishment's shipments made during that week; i.e., no sampling was required.

DATA COLLECTION

Each establishment selected into the CFS sample was mailed a questionnaire for each of its four reporting weeks. We mailed each establishment a questionnaire once every quarter of 2002. For a given establishment, we requested that the respondent provide the following information about each of the establishment's reported shipments: shipment identification number, the date on which the shipment was made, value, weight, commodity, mode(s) of transportation, domestic destination or port of exit, an indication of whether the shipment was an export, and the United Nations or North America (UN/NA) number for hazardous material shipments. For a shipment that included more than one commodity, the respondent was instructed to report the commodity that made up the greatest percentage of the shipment's *weight*. For an export shipment, we also asked the respondent to provide the mode of export and the foreign destination city and country. See Appendix E for a copy of the questionnaire.

IMPUTATION OF SHIPMENT VALUE OR WEIGHT

To correct for nonresponse to *either* the value *or* weight item for a given shipment reported in the CFS, the missing value or value that failed edit is replaced by a predicted value obtained from an appropriate model. Such a shipment is considered a "recipient" if its commodity code is valid and the other item is reported greater than zero and passed edit. The recipient's item that is missing or failed edit is imputed as follows. First, a "donor" shipment is randomly selected from shipments that were reported in the CFS with:

- The same commodity code as the recipient.
- Both value and weight items reported greater than zero and passed edit.
- Origin and value for the item reported by the recipient similar to those of the recipient.

Then, the donor's value and weight data are used to calculate a ratio, which is applied to the recipient's reported item, to impute the item that is missing or failed edit. If no donor is found, the median ratio for all shipments reported in the survey with the same commodity code as the recipient and with both value and weight items reported greater than zero is applied to the recipient's reported item. For either the value or weight item, about 3 percent of the shipment records input to the calculation of estimates have imputed data for the item.

ESTIMATION

Estimated totals (e.g., value of shipments, tons, ton-miles) are produced as the sum of weighted shipment data (reported or imputed). Percent change and percent-of-total estimates are derived using the appropriate estimated totals. Estimates of average miles per shipment are computed by dividing an estimate of the total miles traveled by the estimated number of shipments. The annualized growth rate \hat{A} for estimates from year y_1 to y_2 is computed as:

$$\hat{A} = 100 * \left(\left(\frac{\hat{X}_{y_2}}{\hat{X}_{y_1}} \right)^{1/(y_2 - y_1)} - 1 \right)$$

where \hat{X}_{y_1} and \hat{X}_{y_2} are estimates of the value of shipments, tons, ton-miles, or average miles per shipment for years y_1 and y_2 , respectively. The annualized growth rate measures the annual rate of change between estimates from any 2 years by assuming a constant yearly rate of change.

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

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

Like establishments, we identified shipments as either certainty or noncertainty. (See the Nonsampling Error section in Appendix B for a description of how certainty shipments were identified.) For noncertainty shipments, the *shipment weight* was defined as the ratio of the total number of shipments (as reported by the respondent) made by an establishment in a reporting week to the number of sampled shipments for the same week. This weight uses data from the sampled shipments to represent all the establishment's shipments made in the reporting week. However, a respondent may have failed to provide sufficient information about a particular sampled shipment. For example, a respondent may not have been able to provide value, weight, or a destination for one of the sampled shipments. If this data item could not be imputed, then this shipment did not contribute to tabulations and was 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 applied 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 for certainty shipments from a particular establishment's reporting week is 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 was 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 was one. For each establishment, the quarterly estimates were added to produce an estimate of the establishment's value of shipments for the entire survey year. Whenever an establishment did not provide the Census Bureau with a response for each of its four reporting weeks, we computed 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 computed an estimate of each establishment's value of shipments for the entire survey year. We then multiplied this estimate by a factor that adjusts the estimate using value of shipments and sales data obtained from other surveys and censuses conducted by the Census Bureau. This weight, 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 was then weighted by the *establishment weight*. This weight is equal to the reciprocal of the establishment's probability of being selected into the sample.

A final adjustment weight, the *industry-level adjustment weight*, uses information from other surveys and censuses conducted by the Census Bureau 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 (2001) and the year in which the data were collected (2002). Separate industry-level adjustment weights were 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 of product classification that is used worldwide. The purpose of the SCTG coding system was to specifically address statistical needs in regard to products transported.

In 1993, Commodity Flow Survey (CFS) data were 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 and 2002, 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. For the data presented on this report, we aggregated the SCTG codes to the two-digit level.

