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2002 Economic Census

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	139 843	100.0	495 703	100.0	131 293	100.0	214
Single modes	130 528	93.3	479 467	96.7	124 940	95.2	109
Truck ²	55 481	39.7	130 369	26.3	S	S	93
For-hire truck	32 211	23.0	73 918	14.9	S	S	321
Private truck	23 249	16.6	56 419	11.4	4 558	3.5	37
Rail	17 128	12.2	29 927	6.0	25 986	19.8	983
Water	35 103	25.1	220 917	44.6	55 069	41.9	S
Shallow draft	16 741	12.0	88 220	17.8	29 662	22.6	208
Great Lakes	—	—	—	—	—	—	—
Deep draft	18 362	13.1	132 697	26.8	25 407	19.4	S
Air (includes truck and air)	133	.1	5	—	6	—	1 364
Pipeline ³	22 681	16.2	98 249	19.8	S	S	S
Multiple modes	5 644	4.0	3 780	.8	5 521	4.2	601
Parcel, U.S. Postal Service or courier	4 792	3.4	193	—	110	—	599
Truck and rail	321	.2	344	—	390	.3	1 330
Truck and water	S	S	S	S	S	S	2 473
Rail and water	S	S	S	S	S	S	S
Other multiple modes	S	S	S	S	S	S	S
Other and unknown modes	3 672	2.6	S	S	S	S	78

— 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 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 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	93.3	88.8	96.7	87.4	95.2	93.7
Truck ²	39.7	44.1	26.3	30.9	S	18.2
For-hire truck	23.0	22.8	14.9	14.6	S	14.2
Private truck	16.6	20.8	11.4	16.1	3.5	3.9
Rail	12.2	15.6	6.0	10.2	19.8	26.6
Water	25.1	14.0	44.6	25.3	41.9	38.9
Shallow draft	12.0	11.6	17.8	21.2	22.6	29.8
Great Lakes	—	—	—	—	—	—
Deep draft	13.1	2.4	26.8	4.1	19.4	9.1
Air (includes truck and air) .....	.1	.4	—	—	—	—
Pipeline ³	16.2	14.7	19.8	21.0	S	S
Multiple modes	4.0	3.9	.8	1.6	4.2	4.1
Parcel, U.S. Postal Service or courier	3.4	2.7	—	—	—	—
Truck and rail .....	.2	.4	—	.1	.3	.7
Truck and water	S	.2	S	.3	S	1.4
Rail and water	S	—	S	—	S	—
Other multiple modes	S	S	S	S	S	S
Other and unknown modes	2.6	7.3	S	11.1	S	2.2

— 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 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 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	131 293	100.0	214
Truck	S	S	93
Rail	25 986	19.8	983
Shallow draft	29 662	22.6	208
Great Lakes	—	—	—
Deep draft	25 407	19.4	S
Air	6	—	1 364
Parcel, U.S. Postal Service or courier	8 026	6.1	169
Pipeline ³	S	S	S
Other and unknown modes	S	S	78

— 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	139 843	100.0	495 703	100.0	131 293	100.0
Less than 50 miles	60 253	43.1	304 812	61.5	6 982	5.3
50 to 99 miles	13 084	9.4	37 631	7.6	3 263	2.5
100 to 249 miles	16 479	11.8	33 682	6.8	7 093	5.4
250 to 499 miles	14 448	10.3	32 448	6.5	15 684	11.9
500 to 749 miles	15 004	10.7	42 909	8.7	35 010	26.7
750 to 999 miles	10 656	7.6	18 089	3.6	22 130	16.9
1,000 to 1,499 miles	7 180	5.1	S	S	S	S
1,500 to 1,999 miles	2 324	1.7	1 900	.4	4 719	3.6
2,000 miles or more	415	.3	S	S	S	S
Single modes	130 528	100.0	479 467	100.0	124 940	100.0
Less than 50 miles	57 632	44.2	293 268	61.2	6 852	5.5
50 to 99 miles	12 353	9.5	36 752	7.7	3 190	2.6
100 to 249 miles	14 582	11.2	33 404	7.0	7 021	5.6
250 to 499 miles	13 266	10.2	32 061	6.7	15 476	12.4
500 to 749 miles	14 140	10.8	42 499	8.9	34 685	27.8
750 to 999 miles	9 909	7.6	17 116	3.6	20 446	16.4
1,000 to 1,499 miles	6 324	4.8	S	S	S	S
1,500 to 1,999 miles	1 962	1.5	1 814	.4	4 529	3.6
2,000 miles or more	359	.3	S	S	S	S
Truck³	55 481	100.0	130 369	100.0	S	S
Less than 50 miles	20 983	37.8	78 935	60.5	1 710	4.8
50 to 99 miles	6 899	12.4	11 292	8.7	968	2.7
100 to 249 miles	8 864	16.0	10 495	8.0	2 211	6.2
250 to 499 miles	6 964	12.6	7 069	5.4	2 897	8.1
500 to 749 miles	4 626	8.3	4 119	3.2	3 035	8.5
750 to 999 miles	3 098	5.6	1 745	1.3	1 768	4.9
1,000 to 1,499 miles	2 940	5.3	S	S	S	S
1,500 to 1,999 miles	988	1.8	581	.4	1 163	3.2
2,000 miles or more	120	.2	44	—	117	.3
For-hire truck	32 211	100.0	73 918	100.0	S	S
Less than 50 miles	6 302	19.6	37 922	51.3	S	S
50 to 99 miles	3 141	9.8	5 548	7.5	474	1.5
100 to 249 miles	5 810	18.0	4 215	5.7	895	2.9
250 to 499 miles	5 712	17.7	5 105	6.9	2 153	6.9
500 to 749 miles	4 420	13.7	2 967	4.0	2 209	7.1
750 to 999 miles	2 950	9.2	1 625	2.2	1 644	5.3
1,000 to 1,499 miles	2 826	8.8	S	S	S	S
1,500 to 1,999 miles	934	2.9	527	.7	1 049	3.4
2,000 miles or more	117	.4	44	—	116	.4
Private truck	23 249	100.0	56 419	100.0	4 558	100.0
Less than 50 miles	14 676	63.1	40 997	72.7	764	16.8
50 to 99 miles	3 744	16.1	5 729	10.2	493	10.8
100 to 249 miles	3 052	13.1	6 280	11.1	1 316	28.9
250 to 499 miles	1 251	5.4	1 963	3.5	743	16.3
500 to 749 miles	207	.9	S	S	S	S
750 to 999 miles	148	.6	120	.2	124	2.7
1,000 to 1,499 miles	114	.5	125	.2	179	3.9
1,500 to 1,999 miles	55	.2	S	S	S	S
2,000 miles or more	S	S	S	S	S	S
Rail	17 128	100.0	29 927	100.0	25 986	100.0
Less than 50 miles	596	3.5	1 266	4.2	44	.2
50 to 99 miles	625	3.6	1 148	3.8	143	.6
100 to 249 miles	1 578	9.2	3 323	11.1	888	3.4
250 to 499 miles	2 795	16.3	6 390	21.4	3 304	12.7
500 to 749 miles	3 418	20.0	7 160	23.9	6 238	24.0
750 to 999 miles	4 271	24.9	5 786	19.3	6 697	25.8
1,000 to 1,499 miles	2 699	15.8	3 422	11.4	5 348	20.6
1,500 to 1,999 miles	909	5.3	966	3.2	2 006	7.7
2,000 miles or more	236	1.4	S	S	S	S
Water	35 103	100.0	220 917	100.0	55 069	100.0
Less than 50 miles	20 739	59.1	147 776	66.9	4 807	8.7
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	1 797	5.1	9 394	4.3	2 531	4.6
250 to 499 miles	2 957	8.4	17 214	7.8	8 882	16.1
500 to 749 miles	5 987	17.1	30 555	13.8	24 982	45.4
750 to 999 miles	1 662	4.7	5 916	2.7	8 817	16.0
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
Shallow draft	16 741	100.0	88 220	100.0	29 662	100.0
Less than 50 miles	7 631	45.6	41 050	46.5	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	1 793	10.7	9 252	10.5	2 445	8.2
250 to 499 miles	2 834	16.9	16 430	18.6	8 423	28.4
500 to 749 miles	1 219	7.3	6 743	7.6	7 176	24.2
750 to 999 miles	1 662	9.9	5 916	6.7	8 817	29.7
1,000 to 1,499 miles	S	S	S	S	S	S
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	18 362	100.0	132 697	100.0	25 407	100.0
Less than 50 miles	13 108	71.4	106 726	80.4	3 729	14.7
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	4 768	26.0	23 812	17.9	17 806	70.1
750 to 999 miles	—	—	—	—	—	—
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
Air (includes truck and air)	133	100.0	5	100.0	6	100.0
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	42	31.8	1	19.4	1	14.1
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	12	9.0	S	S	S	S
1,500 to 1,999 miles	6	4.4	—	8.7	S	S
2,000 miles or more	S	S	S	S	S	S
Pipeline⁴	22 681	100.0	98 249	100.0	S	S
Less than 50 miles	15 314	67.5	65 291	66.5	S	S
50 to 99 miles	3 253	14.3	15 801	16.1	S	S
100 to 249 miles	2 338	10.3	10 192	10.4	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
2,000 miles or more	—	—	—	—	S	S
Multiple modes	5 644	100.0	3 780	100.0	5 521	100.0
Less than 50 miles	762	13.5	38	1.0	S	S
50 to 99 miles	627	11.1	S	S	S	S
100 to 249 miles	619	11.0	129	3.4	42	8.8
250 to 499 miles	1 021	18.1	S	S	S	S
500 to 749 miles	758	13.4	S	S	S	S
750 to 999 miles	684	12.1	S	S	S	S
1,000 to 1,499 miles	793	14.1	S	S	S	S
1,500 to 1,999 miles	326	5.8	S	S	S	S
2,000 miles or more	54	.9	S	S	S	S
Parcel, U.S. Postal Service or courier	4 792	100.0	193	100.0	110	100.0
Less than 50 miles	758	15.8	23	12.2	1	.6
50 to 99 miles	452	9.4	23	11.8	2	1.9
100 to 249 miles	581	12.1	32	16.6	6	5.2
250 to 499 miles	929	19.4	42	21.9	19	17.5
500 to 749 miles	709	14.8	27	13.9	19	17.3
750 to 999 miles	497	10.4	20	10.6	21	19.3
1,000 to 1,499 miles	553	11.5	18	9.4	S	S
1,500 to 1,999 miles	263	5.5	6	3.1	13	11.5
2,000 miles or more	50	1.0	1	.5	2	2.2
Truck and rail	321	100.0	344	100.0	390	100.0
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	S	S	S	S	S	S
500 to 749 miles	37	11.4	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	101	29.3	165	42.2
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	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	—	—	—	—	—	—
2,000 miles or more	S	S	S	S	S	S

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	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	—	—	—	—	—	—
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
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	S	S	S	S	S	S
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	S	S	S	S	S	S
Other and unknown modes	3 672	100.0	S	S	S	S
Less than 50 miles	1 859	50.6	S	S	127	15.3
50 to 99 miles	104	2.8	95	.8	8	1.0
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	160	4.4	128	1.0	52	6.2
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	63	1.7	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	S	S	S	S	S	S

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

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	139 843	100.0	495 703	100.0	131 293	100.0	214
Less than 50 lb	8 651	6.2	215	—	45	—	265
50 to 99 lb	2 058	1.5	215	—	34	—	161
100 to 499 lb	7 782	5.6	1 348	.3	157	.1	128
500 to 749 lb	1 510	1.1	457	—	37	—	80
750 to 999 lb	957	.7	297	—	52	—	166
1,000 to 9,999 lb	12 006	8.6	5 129	1.0	983	.7	181
10,000 to 49,999 lb	27 050	19.3	53 881	10.9	12 742	9.7	215
50,000 to 99,999 lb	5 275	3.8	42 069	8.5	3 226	2.5	73
100,000 lb or more	74 553	53.3	392 093	79.1	114 016	86.8	675
Single modes	130 528	100.0	479 467	100.0	124 940	100.0	109
Less than 50 lb	5 221	4.0	131	—	10	—	86
50 to 99 lb	1 276	1.0	164	—	12	—	71
100 to 499 lb	5 336	4.1	1 198	.2	112	—	97
500 to 749 lb	1 382	1.1	436	—	34	—	76
750 to 999 lb	882	.7	267	—	35	—	128
1,000 to 9,999 lb	11 511	8.8	4 529	.9	915	.7	187
10,000 to 49,999 lb	26 027	19.9	44 675	9.3	12 034	9.6	246
50,000 to 99,999 lb	5 012	3.8	40 144	8.4	3 098	2.5	73
100,000 lb or more	73 880	56.6	387 922	80.9	108 689	87.0	670
Truck²	55 481	100.0	130 369	100.0	S	S	93
Less than 50 lb	5 187	9.3	130	.1	9	—	75
50 to 99 lb	1 191	2.1	163	.1	11	—	63
100 to 499 lb	5 269	9.5	1 193	.9	109	.3	95
500 to 749 lb	1 378	2.5	435	.3	33	—	75
750 to 999 lb	882	1.6	267	.2	35	.1	128
1,000 to 9,999 lb	8 668	15.6	4 275	3.3	607	1.7	130
10,000 to 49,999 lb	25 136	45.3	43 874	33.7	11 492	32.1	238
50,000 to 99,999 lb	4 366	7.9	39 024	29.9	2 462	6.9	62
100,000 lb or more	3 404	6.1	41 007	31.5	S	S	125
For-hire truck	32 211	100.0	73 918	100.0	S	S	321
Less than 50 lb	S	S	S	S	S	S	249
50 to 99 lb	372	1.2	16	—	7	—	420
100 to 499 lb	1 929	6.0	142	.2	70	.2	479
500 to 749 lb	348	1.1	46	—	20	—	445
750 to 999 lb	352	1.1	48	—	24	—	488
1,000 to 9,999 lb	3 896	12.1	843	1.1	441	1.4	507
10,000 to 49,999 lb	18 297	56.8	21 155	28.6	8 818	28.2	424
50,000 to 99,999 lb	2 078	6.4	23 133	31.3	1 327	4.2	58
100,000 lb or more	2 423	7.5	S	S	S	S	395
Private truck	23 249	100.0	56 419	100.0	4 558	100.0	37
Less than 50 lb	2 671	11.5	110	.2	4	—	30
50 to 99 lb	819	3.5	147	.3	4	—	29
100 to 499 lb	3 339	14.4	1 051	1.9	40	.9	38
500 to 749 lb	1 030	4.4	390	.7	13	.3	32
750 to 999 lb	530	2.3	219	.4	12	.3	53
1,000 to 9,999 lb	4 767	20.5	3 429	6.1	166	3.6	47
10,000 to 49,999 lb	6 823	29.3	22 691	40.2	2 672	58.6	100
50,000 to 99,999 lb	2 288	9.8	15 891	28.2	1 135	24.9	69
100,000 lb or more	981	4.2	S	S	512	11.2	S
Rail	17 128	100.0	29 927	100.0	25 986	100.0	983
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	S	S	S	S	S	S	63
100 to 499 lb	S	S	S	S	S	S	611
500 to 749 lb	S	S	S	S	S	S	775
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	1 282
10,000 to 49,999 lb	585	3.4	386	1.3	523	2.0	1 334
50,000 to 99,999 lb	573	3.3	866	2.9	569	2.2	714
100,000 lb or more	13 133	76.7	28 439	95.0	24 586	94.6	851
Water	35 103	100.0	220 917	100.0	55 069	100.0	S
Less than 50 lb	S	S	S	S	S	S	S
50 to 99 lb	S	S	S	S	S	S	2
100 to 499 lb	S	S	S	S	S	S	6
500 to 749 lb	—	—	—	—	—	—	—
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	386	.2	S	S	S
50,000 to 99,999 lb	S	S	S	S	S	S	24
100,000 lb or more	34 697	98.8	220 366	99.8	55 056	100.0	367
Shallow draft	16 741	100.0	88 220	100.0	29 662	100.0	208
Less than 50 lb	S	S	S	S	S	S	222
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	S
10,000 to 49,999 lb	73	.4	233	.3	S	S	5
50,000 to 99,999 lb	S	S	S	S	S	S	24
100,000 lb or more	16 621	99.3	87 833	99.6	29 659	100.0	366

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	18 362	100.0	132 697	100.0	25 407	100.0	S
Less than 50 lb	S	S	S	S	S	S	2
50 to 99 lb	S	S	S	S	S	S	2
100 to 499 lb	S	S	S	S	S	S	6
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	9
10,000 to 49,999 lb	S	S	S	S	S	S	S
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	18 077	98.4	132 533	99.9	25 397	100.0	369
Air (includes truck and air)	133	100.0	5	100.0	6	100.0	1 364
Less than 50 lb	27	20.0	S	S	S	S	1 393
50 to 99 lb	S	S	S	S	S	S	1 195
100 to 499 lb	19	14.5	S	S	2	38.8	1 498
500 to 749 lb	S	S	S	S	S	S	866
750 to 999 lb	S	S	S	S	S	S	1 602
1,000 to 9,999 lb	S	S	S	S	S	S	1 165
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Pipeline³	22 681	100.0	98 249	100.0	S	S	S
Less than 50 lb	—	—	—	—	S	S	S
50 to 99 lb	—	—	—	—	S	S	S
100 to 499 lb	S	S	S	S	S	S	S
500 to 749 lb	—	—	—	—	S	S	S
750 to 999 lb	—	—	—	—	S	S	S
1,000 to 9,999 lb	S	S	S	S	S	S	S
10,000 to 49,999 lb	7	—	28	—	S	S	S
50,000 to 99,999 lb	S	S	S	S	S	S	S
100,000 lb or more	22 646	99.8	98 110	99.9	S	S	S
Multiple modes	5 644	100.0	3 780	100.0	5 521	100.0	601
Less than 50 lb	3 004	53.2	61	1.6	34	.6	601
50 to 99 lb	674	11.9	38	1.0	21	.4	586
100 to 499 lb	971	17.2	70	1.9	36	.7	577
500 to 749 lb	92	1.6	7	.2	S	S	302
750 to 999 lb	52	.9	16	.4	S	S	950
1,000 to 9,999 lb	S	S	S	S	S	S	2 018
10,000 to 49,999 lb	S	S	107	2.8	156	2.8	1 405
50,000 to 99,999 lb	S	S	S	S	S	S	1 932
100,000 lb or more	600	10.6	3 457	91.5	5 212	94.4	1 117
Parcel, U.S. Postal Service or courier	4 792	100.0	193	100.0	110	100.0	599
Less than 50 lb	3 004	62.7	61	31.8	34	30.6	602
50 to 99 lb	674	14.1	38	19.8	21	19.3	586
100 to 499 lb	971	20.3	70	36.4	36	33.2	577
500 to 749 lb	92	1.9	7	3.5	S	S	302
750 to 999 lb	52	1.1	16	8.5	S	S	955
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	321	100.0	344	100.0	390	100.0	1 330
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	1 711
10,000 to 49,999 lb	S	S	S	S	S	S	1 155
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	77	23.9	239	69.3	261	66.9	1 030
Truck and water	S	S	S	S	S	S	2 473
Less than 50 lb	S	S	S	S	S	S	4 447
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	S	S	S	S	S	S	232
1,000 to 9,999 lb	S	S	S	S	S	S	3 818
10,000 to 49,999 lb	S	S	S	S	S	S	1 932
50,000 to 99,999 lb	S	S	S	S	S	S	1 932
100,000 lb or more	S	S	S	S	S	S	1 721

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	S
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	S
Other multiple modes	S	S	S	S	S	S	S
Less than 50 lb	S	S	S	S	S	S	1
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	S	S	S	S	6 181
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	2 815
Other and unknown modes	3 672	100.0	S	S	S	S	78
Less than 50 lb	426	11.6	22	.2	S	S	75
50 to 99 lb	108	2.9	13	.1	S	S	53
100 to 499 lb	S	S	79	.6	S	S	103
500 to 749 lb	36	1.0	S	S	S	S	104
750 to 999 lb	S	S	S	S	S	S	S
1,000 to 9,999 lb	400	10.9	S	S	50	6.0	S
10,000 to 49,999 lb	871	23.7	S	S	S	S	S
50,000 to 99,999 lb	S	S	1 912	15.4	S	S	S
100,000 lb or more	73	2.0	714	5.7	S	S	538

— 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	139 843	100.0	495 703	100.0	131 293	100.0	214
01	Live animals and live fish	—	—	—	—	—	—	—
02	Cereal grains	8 538	6.1	92 152	18.6	3 027	2.3	S
03	Other agricultural products	6 655	4.8	33 110	6.7	1 126	.9	78
04	Animal feed and products of animal origin, n.e.c.	S	S	10 013	2.0	S	S	S
05	Meat, fish, seafood, and their preparations	774	.6	295	—	168	.1	S
06	Milled grain products and preparations, and bakery products	266	.2	S	S	S	S	S
07	Other prepared foodstuffs and fats and oils	4 421	3.2	6 792	1.4	2 124	1.6	S
08	Alcoholic beverages	1 202	.9	599	.1	16	—	31
09	Tobacco products	825	.6	13	—	S	S	38
10	Monumental or building stone	S	S	S	S	S	S	10
11	Natural sands	43	—	S	S	1 177	.9	S
12	Gravel and crushed stone	S	S	14 414	2.9	795	.6	55
13	Nonmetallic minerals n.e.c.	172	.1	1 624	.3	S	S	134
14	Metallic ores and concentrates	S	S	S	S	S	S	S
15	Coal	S	S	S	S	S	S	27
17	Gasoline and aviation turbine fuel	22 070	15.8	98 439	19.9	26 403	20.1	32
18	Fuel oils	11 635	8.3	61 598	12.4	15 045	11.5	S
19	Coal and petroleum products, n.e.c.	6 727	4.8	33 916	6.8	10 284	7.8	S
20	Basic chemicals	18 801	13.4	47 127	9.5	18 671	14.2	288
21	Pharmaceutical products	S	S	S	S	S	S	S
22	Fertilizers	1 906	1.4	S	S	S	S	326
23	Chemical products and preparations, n.e.c.	6 084	4.4	2 345	.5	1 994	1.5	271
24	Plastics and rubber	6 985	5.0	6 616	1.3	4 589	3.5	302
25	Logs and other wood in the rough	S	S	S	S	205	.2	64
26	Wood products	4 365	3.1	9 658	1.9	4 145	3.2	S
27	Pulp, newsprint, paper, and paperboard	4 250	3.0	8 630	1.7	6 582	5.0	615
28	Paper or paperboard articles	653	.5	505	.1	S	S	142
29	Printed products	298	.2	34	—	14	—	343
30	Textiles, leather, and articles of textiles or leather	S	S	103	—	61	—	565
31	Nonmetallic mineral products	1 117	.8	S	S	625	.5	S
32	Base metal in primary or semifinished forms and in finished basic shapes	1 550	1.1	2 181	.4	656	.5	S
33	Articles of base metal	3 750	2.7	1 829	.4	718	.5	114
34	Machinery	2 849	2.0	289	—	108	—	240
35	Electronic and other electrical equipment and components and office equipment	2 131	1.5	268	—	118	—	99
36	Motorized and other vehicles (including parts)	S	S	S	S	S	S	S
37	Transportation equipment, n.e.c.	S	S	S	S	S	S	585
38	Precision instruments and apparatus	1 101	.8	16	—	S	S	401
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	445	.3	42	—	4	—	114
40	Miscellaneous manufactured products	3 222	2.3	275	—	114	—	687
41	Waste and scrap	S	S	S	S	S	S	S
43	Mixed freight	4 341	3.1	1 647	.3	205	.2	157
--	Commodity unknown	108	—	216	—	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).

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
02	Cereal grains	6.1	4.5	18.6	10.2	2.3	1.3
03	Other agricultural products	4.8	3.5	6.7	3.6	.9	.8
04	Animal feed and products of animal origin, n.e.c.	S	.4	2.0	1.0	S	.3
05	Meat, fish, seafood, and their preparations	.6	1.3	—	.2	.1	.1
06	Milled grain products and preparations, and bakery products	.2	.8	S	S	S	.3
07	Other prepared foodstuffs and fats and oils	3.2	4.4	1.4	1.7	1.6	1.5
08	Alcoholic beverages	.9	.6	.1	.1	—	—
09	Tobacco products	.6	S	—	S	S	S
10	Monumental or building stone	S	—	S	—	S	—
11	Natural sands	—	—	S	S	.9	S
12	Gravel and crushed stone	S	S	2.9	4.0	.6	.7
13	Nonmetallic minerals n.e.c.	.1	.2	.3	S	S	S
14	Metallic ores and concentrates	S	—	S	S	S	—
15	Coal	S	—	S	.9	S	—
17	Gasoline and aviation turbine fuel	15.8	11.9	19.9	16.8	20.1	15.5
18	Fuel oils	8.3	7.4	12.4	12.4	11.5	7.4
19	Coal and petroleum products, n.e.c.	4.8	5.4	6.8	6.9	7.8	7.3
20	Basic chemicals	13.4	15.4	9.5	14.2	14.2	21.7
21	Pharmaceutical products	S	1.0	S	—	S	—
22	Fertilizers	1.4	1.8	S	3.1	S	6.3
23	Chemical products and preparations, n.e.c.	4.4	3.8	.5	1.2	1.5	2.2
24	Plastics and rubber	5.0	6.2	1.3	1.9	3.5	5.4
25	Logs and other wood in the rough	S	—	S	S	.2	S
26	Wood products	3.1	S	1.9	S	3.2	S
27	Pulp, newsprint, paper, and paperboard	3.0	3.5	1.7	2.3	5.0	6.5
28	Paper or paperboard articles	.5	.9	.1	.2	S	.3
29	Printed products	.2	.2	—	—	—	—
30	Textiles, leather, and articles of textiles or leather	S	3.3	—	—	—	.1
31	Nonmetallic mineral products	.8	.7	S	S	.5	.5
32	Base metal in primary or semifinished forms and in finished basic shapes	1.1	1.5	.4	.7	.5	1.5
33	Articles of base metal	2.7	2.4	.4	S	.5	S
34	Machinery	2.0	2.9	—	—	—	—
35	Electronic and other electrical equipment and components and office equipment	1.5	1.9	—	—	—	.2
36	Motorized and other vehicles (including parts)	S	3.4	S	—	S	S
37	Transportation equipment, n.e.c.	S	.3	S	—	S	S
38	Precision instruments and apparatus	.8	.7	—	—	S	—
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	.3	.2	—	—	—	—
40	Miscellaneous manufactured products	2.3	2.3	—	.1	—	.2
41	Waste and scrap	S	.3	S	4.4	S	.2
43	Mixed freight	3.1	1.1	.3	6.2	2.2	S
--	Commodity unknown	—	.3	—	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).

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	139 843	100.0	495 703	100.0	131 293	100.0	214
Single modes	130 528	93.3	479 467	96.7	124 940	95.2	109
Truck ³	55 481	39.7	130 369	26.3	S	S	93
For-hire truck	32 211	23.0	73 918	14.9	S	S	321
Private truck	23 249	16.6	56 419	11.4	4 558	3.5	37
Rail	17 128	12.2	29 927	6.0	25 986	19.8	983
Water	35 103	25.1	220 917	44.6	55 069	41.9	S
Shallow draft	16 741	12.0	88 220	17.8	29 662	22.6	208
Great Lakes	—	—	—	—	—	—	—
Deep draft	18 362	13.1	132 697	26.8	25 407	19.4	S
Air (includes truck and air)	133	.1	5	—	6	—	1 364
Pipeline ⁴	22 681	16.2	98 249	19.8	S	S	S
Multiple modes	5 644	4.0	3 780	.8	5 521	4.2	601
Parcel, U.S. Postal Service or courier	4 792	3.4	193	—	110	—	599
Truck and rail	321	.2	344	—	390	.3	1 330
Truck and water	S	S	S	S	S	S	2 473
Rail and water	S	S	S	S	S	S	S
Other multiple modes	S	S	S	S	S	S	S
Other and unknown modes	3 672	2.6	S	S	S	S	78
SCTG 01, LIVE ANIMALS AND LIVE FISH							
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 02, CEREAL GRAINS							
Total	8 538	100.0	92 152	100.0	3 027	100.0	S
Single modes	8 525	99.9	92 043	99.9	2 984	98.6	76
Truck ³	1 313	15.4	13 969	15.2	268	8.8	76
For-hire truck	S	S	S	S	S	S	176
Private truck	S	S	S	S	S	S	61
Rail	—	—	—	—	—	—	—
Water	7 212	84.5	78 074	84.7	2 716	89.7	30
Shallow draft	S	S	S	S	S	S	14
Great Lakes	—	—	—	—	—	—	—
Deep draft	6 318	74.0	69 645	75.6	2 605	86.1	36
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 309
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	1 309
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	93

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	6 655	100.0	33 110	100.0	1 126	100.0	78
Single modes	6 618	99.5	33 103	100.0	1 125	100.0	63
Truck ³	S	S	S	S	S	S	63
For-hire truck	S	S	S	S	S	S	66
Private truck	615	9.2	S	S	S	S	63
Rail	—	—	—	—	—	—	—
Water	5 005	75.2	28 110	84.9	1 005	89.3	34
Shallow draft	332	5.0	1 637	4.9	S	S	8
Great Lakes	—	—	—	—	—	—	—
Deep draft	4 673	70.2	26 473	80.0	996	88.5	37
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	958
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	958
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	34
SCTG 04, ANIMAL FEED AND PRODUCTS OF ANIMAL ORIGIN, N.E.C.							
Total	S	S	10 013	100.0	S	S	S
Single modes	S	S	10 009	100.0	S	S	S
Truck ³	920	85.7	7 373	73.6	S	S	50
For-hire truck	307	28.7	S	S	S	S	258
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	870
Water	S	S	S	S	S	S	823
Shallow draft	S	S	S	S	S	S	938
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	20
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 801
Parcel, U.S. Postal Service or courier	S	S	—	—	—	—	1 666
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S	6 921
Other and unknown modes	—	—	—	—	—	—	—
SCTG 05, MEAT, FISH, SEAFOOD, AND THEIR PREPARATIONS							
Total	774	100.0	295	100.0	168	100.0	S
Single modes	773	100.0	295	100.0	168	100.0	S
Truck ³	773	100.0	295	100.0	168	100.0	S
For-hire truck	264	34.2	160	54.0	148	88.3	565
Private truck	S	S	S	S	S	S	95
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	668
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	668
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	1

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	266	100.0	S	S	S	S	S
Single modes	263	98.8	S	S	S	S	S
Truck ³	196	73.5	542	61.3	S	S	S
For-hire truck	189	70.9	532	60.1	S	S	S
Private truck	S	S	S	S	S	S	11
Rail	S	S	S	S	S	S	1 079
Water	S	S	S	S	S	S	23
Shallow draft	S	S	S	S	S	S	23
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	S	S	1 095
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	1 095
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	5
SCTG 07, OTHER PREPARED FOODSTUFFS AND FATS AND OILS							
Total	4 421	100.0	6 792	100.0	2 124	100.0	S
Single modes	4 316	97.6	6 705	98.7	2 088	98.3	S
Truck ³	3 878	87.7	5 120	75.4	1 032	48.6	S
For-hire truck	2 499	56.5	3 255	47.9	901	42.4	360
Private truck	1 379	31.2	1 864	27.4	131	6.2	S
Rail	242	5.5	S	S	S	S	1 035
Water	S	S	S	S	S	S	198
Shallow draft	S	S	S	S	S	S	198
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	S	S	S	S	S	S	698
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	79	1.2	S	S	550
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	495
Truck and rail	S	S	S	S	S	S	688
Truck and water	S	S	S	S	S	S	285
Rail and water	S	S	S	S	S	S	313
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	100
SCTG 08, ALCOHOLIC BEVERAGES							
Total	1 202	100.0	599	100.0	16	100.0	31
Single modes	1 192	99.2	590	98.5	16	98.8	31
Truck ³	1 192	99.2	590	98.5	16	98.8	31
For-hire truck	S	S	S	S	S	S	7
Private truck	1 192	99.1	590	98.4	16	98.8	31
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	23
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	23
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	20

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	825	100.0	13	100.0	S	S	38
Single modes	824	99.9	13	99.9	S	S	38
Truck ³	824	99.9	13	99.9	S	S	38
For-hire truck	—	—	—	—	—	—	—
Private truck	824	99.9	13	99.9	S	S	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	26
SCTG 10, MONUMENTAL OR BUILDING STONE							
Total	S	S	S	S	S	S	10
Single modes	S	S	S	S	S	S	10
Truck ³	S	S	S	S	S	S	10
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	10
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	43	100.0	S	S	1 177	100.0	S
Single modes	36	82.9	S	S	S	S	45
Truck ³	36	82.9	S	S	S	S	45
For-hire truck	S	S	S	S	S	S	S
Private truck	13	31.0	5 464	29.5	203	17.2	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	1 141	6.2	S	S	528

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	\$	\$	14 414	100.0	795	100.0	55
Single modes	\$	\$	13 148	91.2	764	96.1	57
Truck ³	\$	\$	13 148	91.2	764	96.1	57
For-hire truck	38	27.0	4 778	33.1	291	36.6	59
Private truck	\$	\$	8 370	58.1	473	59.5	56
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	1 272
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	1 272
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	1 266	8.8	31	3.9	\$
SCTG 13, NONMETALLIC MINERALS N.E.C.							
Total	172	100.0	1 624	100.0	\$	\$	134
Single modes	172	100.0	1 624	100.0	\$	\$	134
Truck ³	\$	\$	819	50.4	112	10.9	122
For-hire truck	\$	\$	503	31.0	88	8.6	275
Private truck	\$	\$	\$	\$	\$	\$	\$
Rail	\$	\$	\$	\$	\$	\$	987
Water	\$	\$	\$	\$	\$	\$	1 073
Shallow draft	\$	\$	\$	\$	\$	\$	1 073
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 14, METALLIC ORES AND CONCENTRATES							
Total	\$	\$	\$	\$	\$	\$	\$
Single modes	\$	\$	\$	\$	\$	\$	\$
Truck ³	\$	\$	\$	\$	\$	\$	\$
For-hire truck	\$	\$	\$	\$	\$	\$	3
Private truck	\$	\$	\$	\$	1	78.3	\$
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	141
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	141
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 15, COAL							
Total	S	S	S	S	S	S	27
Single modes	S	S	S	S	S	S	27
Truck ³	S	S	S	S	S	S	27
For-hire truck	S	S	S	S	S	S	27
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 17, GASOLINE AND AVIATION TURBINE FUEL							
Total	22 070	100.0	98 439	100.0	26 403	100.0	32
Single modes	22 001	99.7	98 166	99.7	26 393	100.0	31
Truck ³	2 451	11.1	8 022	8.1	379	1.4	19
For-hire truck	769	3.5	2 414	2.5	65	.2	24
Private truck	1 682	7.6	5 608	5.7	S	S	17
Rail	S	S	S	S	S	S	2 876
Water	6 040	27.4	30 534	31.0	19 116	72.4	551
Shallow draft	1 638	7.4	8 978	9.1	2 607	9.9	322
Great Lakes	-	-	-	-	-	-	-
Deep draft	4 402	19.9	21 556	21.9	16 509	62.5	713
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	13 466	61.0	59 322	60.3	S	S	S
Multiple modes	S	S	S	S	S	S	1 932
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	S	S	S	S	S	S	1 932
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	12
SCTG 18, FUEL OILS							
Total	11 635	100.0	61 598	100.0	15 045	100.0	S
Single modes	11 396	97.9	60 302	97.9	12 323	81.9	S
Truck ³	853	7.3	3 460	5.6	103	.7	S
For-hire truck	160	1.4	682	1.1	18	.1	29
Private truck	693	6.0	2 778	4.5	85	.6	S
Rail	S	S	S	S	S	S	673
Water	6 862	59.0	38 504	62.5	11 244	74.7	S
Shallow draft	5 511	47.4	30 732	49.9	7 432	49.4	S
Great Lakes	-	-	-	-	-	-	-
Deep draft	1 351	11.6	7 772	12.6	3 812	25.3	606
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	3 667	31.5	18 261	29.6	S	S	S
Multiple modes	S	S	S	S	S	S	1 936
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	S	S	S	S	S	S	1 921
Rail and water	-	-	-	-	-	-	-
Other multiple modes	S	S	S	S	S	S	2 814
Other and unknown modes	S	S	S	S	S	S	21

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	6 727	100.0	33 916	100.0	10 284	100.0	S
Single modes	6 533	97.1	32 059	94.5	8 436	82.0	S
Truck ³	S	S	2 082	6.1	S	S	S
For-hire truck	S	S	1 415	4.2	S	S	491
Private truck	249	3.7	667	2.0	83	.8	S
Rail	602	8.9	1 315	3.9	747	7.3	687
Water	3 085	45.9	22 346	65.9	6 774	65.9	303
Shallow draft	2 171	32.3	16 720	49.3	5 485	53.3	313
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	S
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	1 401	20.8	6 316	18.6	S	S	S
Multiple modes	S	S	S	S	S	S	614
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	513
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	1 992
Rail and water	S	S	S	S	S	S	81
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	21
SCTG 20, BASIC CHEMICALS							
Total	18 801	100.0	47 127	100.0	18 671	100.0	288
Single modes	18 592	98.9	46 487	98.6	18 179	97.4	285
Truck ³	4 869	25.9	8 251	17.5	2 634	14.1	238
For-hire truck	4 228	22.5	4 471	9.5	1 607	8.6	405
Private truck	641	3.4	S	S	S	S	132
Rail	4 693	25.0	8 985	19.1	6 649	35.6	746
Water	4 972	26.4	15 635	33.2	8 728	46.7	510
Shallow draft	4 620	24.6	14 595	31.0	8 550	45.8	533
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	232
Air (includes truck and air)	S	S	S	S	S	S	1 025
Pipeline ⁴	4 057	21.6	13 616	28.9	S	S	S
Multiple modes	169	.9	322	.7	456	2.4	S
Parcel, U.S. Postal Service or courier	S	S	—	—	S	S	S
Truck and rail	S	S	S	S	S	S	1 850
Truck and water	S	S	S	S	S	S	695
Rail and water	S	S	S	S	S	S	S
Other multiple modes	S	S	S	S	S	S	2 510
Other and unknown modes	S	S	S	S	S	S	S
SCTG 21, PHARMACEUTICAL PRODUCTS							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	237
Truck ³	S	S	S	S	S	S	237
For-hire truck	S	S	S	S	S	S	243
Private truck	S	S	S	S	S	S	59
Rail	S	S	S	S	S	S	257
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	662
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	662
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	239

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	1 906	100.0	S	S	S	S	326
Single modes	1 902	99.8	S	S	S	S	323
Truck ³	668	35.0	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	718
Private truck	62	3.2	344	1.5	S	S	S
Rail	S	S	2 146	9.3	2 138	8.0	941
Water	370	19.4	4 964	21.5	3 973	14.8	765
Shallow draft	370	19.4	4 964	21.5	3 973	14.8	765
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	90	4.7	735	3.2	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	1 106
SCTG 23, CHEMICAL PRODUCTS AND PREPARATIONS, N.E.C.							
Total	6 084	100.0	2 345	100.0	1 994	100.0	271
Single modes	5 729	94.2	2 294	97.8	1 985	99.5	S
Truck ³	3 862	63.5	1 111	47.4	796	39.9	193
For-hire truck	3 630	59.7	1 028	43.8	791	39.7	555
Private truck	S	S	S	S	S	S	S
Rail	1 300	21.4	982	41.9	1 178	59.1	1 506
Water	S	S	S	S	S	S	S
Shallow draft	S	S	S	S	S	S	18
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	S
Air (includes truck and air)	S	S	S	S	S	S	1 770
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	375
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	378
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S	1
Other and unknown modes	S	S	S	S	S	S	S
SCTG 24, PLASTICS AND RUBBER							
Total	6 985	100.0	6 616	100.0	4 589	100.0	302
Single modes	6 236	89.3	6 381	96.4	4 524	98.6	193
Truck ³	2 923	41.9	1 476	22.3	832	18.1	170
For-hire truck	2 432	34.8	1 410	21.3	826	18.0	473
Private truck	492	7.0	66	1.0	6	.1	S
Rail	3 292	47.1	4 904	74.1	3 691	80.4	771
Water	S	S	S	S	S	S	2
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	2
Air (includes truck and air)	S	S	S	S	S	S	1 011
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	61	1.3	529
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	528
Truck and rail	S	S	S	S	S	S	1 811
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	4	—	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 25, LOGS AND OTHER WOOD IN THE ROUGH							
Total	S	S	S	S	205	100.0	64
Single modes	S	S	S	S	202	98.5	65
Truck ³	S	S	S	S	S	S	58
For-hire truck	S	S	S	S	S	S	89
Private truck	S	S	S	S	S	S	46
Rail	S	S	S	S	S	S	1 058
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	45
SCTG 26, WOOD PRODUCTS							
Total	4 365	100.0	9 658	100.0	4 145	100.0	S
Single modes	4 165	95.4	9 443	97.8	4 021	97.0	S
Truck ³	3 442	78.9	7 354	76.1	1 706	41.1	S
For-hire truck	708	16.2	3 049	31.6	838	20.2	310
Private truck	S	S	4 304	44.6	S	S	S
Rail	723	16.6	2 090	21.6	2 315	55.9	1 117
Water	S	S	S	S	S	S	2
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	2
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
Truck and rail	S	S	S	S	S	S	1 308
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	135	1.4	S	S	S
SCTG 27, PULP, NEWSPRINT, PAPER, AND PAPERBOARD							
Total	4 250	100.0	8 630	100.0	6 582	100.0	615
Single modes	4 169	98.1	8 464	98.1	6 450	98.0	597
Truck ³	2 271	53.4	3 866	44.8	2 427	36.9	521
For-hire truck	2 172	51.1	3 713	43.0	2 352	35.7	624
Private truck	99	2.3	153	1.8	S	S	S
Rail	1 897	44.6	4 598	53.3	4 023	61.1	851
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 185
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	869
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	874
Truck and rail	S	S	S	S	S	S	813
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	630
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	3	—	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 28, PAPER OR PAPERBOARD ARTICLES							
Total	653	100.0	505	100.0	S	S	142
Single modes	641	98.2	501	99.1	S	S	127
Truck ³	641	98.2	501	99.1	S	S	126
For-hire truck	S	S	349	69.1	S	S	414
Private truck	258	39.6	151	30.0	S	S	73
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 367
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	—	.1	215
Parcel, U.S. Postal Service or courier	S	S	S	S	—	.1	215
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	118
SCTG 29, PRINTED PRODUCTS							
Total	298	100.0	34	100.0	14	100.0	343
Single modes	245	82.4	30	89.6	13	93.3	341
Truck ³	234	78.5	30	87.5	12	85.3	S
For-hire truck	S	S	13	39.6	11	81.5	677
Private truck	149	49.9	S	S	S	S	39
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 397
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	41	13.8	3	7.7	1	6.6	439
Parcel, U.S. Postal Service or courier	41	13.8	3	7.7	1	6.6	439
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 30, TEXTILES, LEATHER, AND ARTICLES OF TEXTILES OR LEATHER							
Total	S	S	103	100.0	61	100.0	565
Single modes	S	S	97	94.0	60	98.2	626
Truck ³	S	S	97	93.8	60	98.2	630
For-hire truck	S	S	56	54.4	57	93.6	1 021
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	S	S	S	S	S	S	2
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	2
Air (includes truck and air)	S	S	S	S	S	S	686
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	3	3.1	1	1.6	550
Parcel, U.S. Postal Service or courier	S	S	3	3.1	1	1.6	546
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	4 402
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	91

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	1 117	100.0	S	S	625	100.0	S
Single modes	738	66.1	5 047	37.9	554	88.7	S
Truck ³	725	64.9	4 816	36.1	372	59.6	S
For-hire truck	349	31.3	1 711	12.8	265	42.3	S
Private truck	357	32.0	3 075	23.1	106	17.0	S
Rail	S	S	S	S	S	S	825
Water	S	S	S	S	S	S	S
Shallow draft	S	S	S	S	S	S	1 173
Great Lakes	S	S	S	S	S	S	—
Deep draft	S	S	S	S	S	S	2
Air (includes truck and air)	S	S	S	S	S	S	1 786
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	318
Truck and rail	S	S	S	S	S	S	—
Truck and water	S	S	S	S	S	S	7 556
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 32, BASE METAL IN PRIMARY OR SEMIFINISHED FORMS AND IN FINISHED BASIC SHAPES							
Total	1 550	100.0	2 181	100.0	656	100.0	S
Single modes	1 517	97.9	2 167	99.4	651	99.2	S
Truck ³	1 310	84.5	1 950	89.4	379	57.8	S
For-hire truck	494	31.8	846	38.8	300	45.7	303
Private truck	816	52.6	1 104	50.6	79	12.1	S
Rail	61	4.0	109	5.0	S	S	935
Water	144	9.3	107	4.9	125	19.0	1 163
Shallow draft	144	9.3	107	4.9	125	19.0	1 163
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 419
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	2	—	S	S	549
Parcel, U.S. Postal Service or courier	S	S	2	—	S	S	549
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	3 750	100.0	1 829	100.0	718	100.0	114
Single modes	3 235	86.3	1 629	89.1	559	77.9	S
Truck ³	2 628	70.1	1 288	70.4	294	41.0	S
For-hire truck	1 541	41.1	754	41.2	273	38.0	344
Private truck	1 087	29.0	534	29.2	S	S	S
Rail	S	S	S	S	S	S	840
Water	S	S	S	S	S	S	9
Shallow draft	S	S	S	S	S	S	6
Great Lakes	S	S	S	S	S	S	—
Deep draft	S	S	S	S	S	S	9
Air (includes truck and air)	S	S	S	S	S	S	2 016
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	13	.7	S	S	214
Parcel, U.S. Postal Service or courier	S	S	13	.7	S	S	214
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	232
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 34, MACHINERY							
Total	2 849	100.0	289	100.0	108	100.0	240
Single modes	2 368	83.1	264	91.5	96	88.8	168
Truck ³	2 351	82.5	264	91.3	95	88.3	148
For-hire truck	1 654	58.1	198	68.4	86	79.9	445
Private truck	697	24.5	66	22.9	9	8.4	39
Rail	S	S	S	S	S	S	63
Water	S	S	S	S	S	S	2
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	2
Air (includes truck and air)	S	S	S	S	S	S	1 566
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	384	13.5	15	5.0	7	6.2	356
Parcel, U.S. Postal Service or courier	384	13.5	15	5.0	7	6.2	356
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	4 703
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	97	3.4	S	S	S	S	S
SCTG 35, ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONENTS AND OFFICE EQUIPMENT							
Total	2 131	100.0	268	100.0	118	100.0	99
Single modes	1 530	71.8	247	92.1	111	94.1	S
Truck ³	1 464	68.7	237	88.2	102	86.4	S
For-hire truck	786	36.9	141	52.6	100	84.6	S
Private truck	678	31.8	S	S	S	S	S
Rail	S	S	S	S	S	S	859
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	1 217
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	558	26.2	S	S	S	S	300
Parcel, U.S. Postal Service or courier	558	26.2	S	S	S	S	300
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	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	265
Truck ³	1 844	35.7	366	44.7	160	23.5	S
For-hire truck	S	S	S	S	S	S	572
Private truck	633	12.3	187	22.8	33	4.8	62
Rail	S	S	S	S	S	S	1 246
Water	S	S	S	S	S	S	2
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	2
Air (includes truck and air)	S	S	S	S	S	S	1 177
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	259
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	243
Truck and rail	S	S	S	S	S	S	1 711
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 37, TRANSPORTATION EQUIPMENT, N.E.C.							
Total	\$	\$	\$	\$	\$	\$	585
Single modes	\$	\$	\$	\$	\$	\$	157
Truck ³	\$	\$	\$	\$	\$	\$	158
For-hire truck	\$	\$	\$	\$	\$	\$	158
Private truck	-	-	-	-	-	-	-
Rail	-	-	-	-	-	-	-
Water	\$	\$	\$	\$	\$	\$	38
Shallow draft	\$	\$	\$	\$	\$	\$	38
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	1 196
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	1 196
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 38, PRECISION INSTRUMENTS AND APPARATUS							
Total	1 101	100.0	16	100.0	\$	\$	401
Single modes	442	40.2	7	46.7	\$	\$	108
Truck ³	434	39.4	7	46.2	\$	\$	109
For-hire truck	278	25.2	5	30.7	\$	\$	144
Private truck	\$	\$	\$	\$	\$	\$	\$
Rail	-	-	-	-	-	-	-
Water	\$	\$	\$	\$	\$	\$	2
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	\$	\$	\$	\$	\$	\$	2
Air (includes truck and air)	\$	\$	\$	\$	\$	\$	321
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	638	57.9	\$	\$	\$	\$	451
Parcel, U.S. Postal Service or courier	638	57.9	\$	\$	\$	\$	451
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	\$	\$	\$	\$	\$	\$	48
SCTG 39, FURNITURE, MATTRESSES AND MATTRESS SUPPORTS, LAMPS, LIGHTING FITTINGS, AND ILLUMINATED SIGNS							
Total	445	100.0	42	100.0	4	100.0	114
Single modes	419	94.1	41	97.2	4	91.9	\$
Truck ³	418	94.0	41	97.2	4	91.6	\$
For-hire truck	\$	\$	\$	\$	\$	\$	637
Private truck	389	87.5	40	94.9	3	69.7	25
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	\$	\$	\$	\$	\$	\$	1 515
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	\$	\$	1	1.8	\$	\$	371
Parcel, U.S. Postal Service or courier	\$	\$	1	1.8	\$	\$	371
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	\$	\$	\$	\$	\$	\$	9

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	3 222	100.0	275	100.0	114	100.0	687
Single modes	1 241	38.5	192	69.9	68	59.5	101
Truck ³	1 203	37.3	190	69.2	66	58.1	83
For-hire truck	\$ 270	\$ 8.3	\$ 37	\$ 13.5	\$ 56	\$ 48.9	458
Private truck	529	16.4	91	33.2	\$ 10	\$ 9.2	24
Rail	\$	\$	\$	\$	\$	\$	2 019
Water	\$	\$	\$	\$	\$	\$	7
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	\$	\$	\$	\$	\$	\$	7
Air (includes truck and air)	15	.5	—	—	\$	\$	1 462
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	1 530	47.5	49	17.7	\$	\$	955
Parcel, U.S. Postal Service or courier	1 530	47.5	49	17.7	\$	\$	955
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	\$
SCTG 41, WASTE AND SCRAP							
Total	\$	\$	\$	\$	\$	\$	\$
Single modes	\$	\$	\$	\$	\$	\$	\$
Truck ³	\$	\$	\$	\$	30	12.7	\$
For-hire truck	\$	\$	\$	\$	\$	\$	150
Private truck	\$	\$	\$	\$	\$	\$	\$
Rail	—	—	—	—	—	—	—
Water	\$	\$	\$	\$	\$	\$	\$
Shallow draft	\$	\$	\$	\$	\$	\$	716
Great Lakes	—	—	—	—	—	—	—
Deep draft	\$	\$	\$	\$	\$	\$	2
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 43, MIXED FREIGHT							
Total	4 341	100.0	1 647	100.0	205	100.0	157
Single modes	3 800	87.5	1 528	92.8	189	92.2	71
Truck ³	3 799	87.5	1 528	92.8	189	92.2	71
For-hire truck	270	6.2	37	2.3	\$	\$	413
Private truck	3 528	81.3	1 491	90.5	174	85.2	31
Rail	—	—	—	—	—	—	—
Water	\$	\$	\$	\$	\$	\$	90
Shallow draft	\$	\$	\$	\$	\$	\$	222
Great Lakes	—	—	—	—	—	—	—
Deep draft	\$	\$	\$	\$	\$	\$	2
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	11	.7	\$	\$	696
Parcel, U.S. Postal Service or courier	\$	\$	11	.7	\$	\$	696
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	
COMMODITY UNKNOWN							
Total	108	100.0	216	100.0	S	S	S
Single modes	101	93.5	205	95.0	S	S	S
Truck ³	60	55.9	74	34.2	S	S	S
For-hire truck	S	S	39	18.1	6	6.5	607
Private truck	35	32.3	35	16.1	2	2.5	S
Rail	33	30.8	S	S	S	S	846
Water	S	S	S	S	S	S	38
Shallow draft	S	S	S	S	S	S	38
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	S	S	S	S	S	S	287
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	25

- 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	139 843	100.0	495 703	100.0	131 293	100.0
NEW ENGLAND STATES						
Connecticut	90	—	89	—	141	.1
Maine	48	—	S	S	S	S
Massachusetts	248	.2	253	—	421	.3
New Hampshire	78	—	101	—	182	.1
Rhode Island	S	S	35	—	61	—
Vermont	S	S	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	1 929	1.4	S	S	S	S
New York	1 257	.9	942	.2	S	S
Pennsylvania	1 112	.8	1 021	.2	1 517	1.2
EAST NORTH CENTRAL STATES						
Illinois	4 020	2.9	8 630	1.7	8 827	6.7
Indiana	871	.6	690	.1	606	.5
Michigan	1 960	1.4	1 156	.2	1 316	1.0
Ohio	2 038	1.5	4 526	.9	6 270	4.8
Wisconsin	640	.5	1 474	.3	1 802	1.4
WEST NORTH CENTRAL STATES						
Iowa	1 283	.9	1 360	.3	1 545	1.2
Kansas	451	.3	462	—	395	.3
Minnesota	706	.5	540	.1	S	S
Missouri	2 055	1.5	2 503	.5	2 107	1.6
Nebraska	122	—	445	—	440	.3
North Dakota	S	S	S	S	S	S
South Dakota	S	S	S	S	S	S
SOUTH ATLANTIC STATES						
Delaware	40	—	93	—	132	.1
District of Columbia	13	—	S	S	S	S
Florida	7 132	5.1	27 318	5.5	19 884	15.1
Georgia	2 259	1.6	2 894	.6	1 875	1.4
Maryland	285	.2	S	S	S	S
North Carolina	944	.7	1 388	.3	1 271	1.0
South Carolina	755	.5	1 101	.2	930	.7
Virginia	894	.6	S	S	S	S
West Virginia	391	.3	724	.1	958	.7
EAST SOUTH CENTRAL STATES						
Alabama	3 802	2.7	3 058	.6	1 337	1.0
Kentucky	1 672	1.2	7 253	1.5	7 035	5.4
Mississippi	5 011	3.6	14 659	3.0	2 369	1.8
Tennessee	1 760	1.3	4 510	.9	2 975	2.3
WEST SOUTH CENTRAL STATES						
Arkansas	1 604	1.1	3 710	.7	1 365	1.0
Louisiana	76 181	54.5	345 241	69.6	11 775	9.0
Oklahoma	1 038	.7	1 827	.4	1 285	1.0
Texas	12 651	9.0	32 726	6.6	10 906	8.3
MOUNTAIN STATES						
Arizona	441	.3	677	.1	955	.7
Colorado	242	.2	244	—	298	.2
Idaho	S	S	S	S	S	S
Montana	S	S	S	S	S	S
Nevada	80	—	70	—	138	.1
New Mexico	48	—	52	—	52	—
Utah	110	—	S	S	S	S
Wyoming	40	—	23	—	37	—
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	2 505	1.8	2 574	.5	5 772	4.4
Hawaii	S	S	S	S	S	S
Oregon	278	.2	166	—	422	.3
Washington	482	.3	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	159 495	100.0	561 053	100.0	253 014	100.0
NEW ENGLAND STATES						
Connecticut	121	—	10	—	15	—
Maine	S	S	S	S	S	S
Massachusetts	432	.3	32	—	50	—
New Hampshire	145	—	9	—	15	—
Rhode Island	S	S	S	S	S	S
Vermont	13	—	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	1 563	1.0	S	S	S	S
New York	1 575	1.0	S	S	S	S
Pennsylvania	960	.6	S	S	S	S
EAST NORTH CENTRAL STATES						
Illinois	7 228	4.5	43 486	7.8	50 479	20.0
Indiana	1 396	.9	3 922	.7	3 846	1.5
Michigan	1 817	1.1	310	—	344	.1
Ohio	S	S	5 854	1.0	7 056	2.8
Wisconsin	1 688	1.1	S	S	S	S
WEST NORTH CENTRAL STATES						
Iowa	2 548	1.6	12 598	2.2	16 164	6.4
Kansas	1 630	1.0	4 192	.7	4 844	1.9
Minnesota	2 817	1.8	21 679	3.9	35 857	14.2
Missouri	2 026	1.3	11 930	2.1	10 727	4.2
Nebraska	158	.1	188	—	202	—
North Dakota	80	—	S	S	S	S
South Dakota	36	—	S	S	S	S
SOUTH ATLANTIC STATES						
Delaware	72	—	S	S	S	S
District of Columbia	S	S	S	S	—	—
Florida	1 738	1.1	1 530	.3	980	.4
Georgia	4 676	2.9	1 560	.3	983	.4
Maryland	S	S	49	—	55	—
North Carolina	1 304	.8	345	—	282	.1
South Carolina	749	.5	141	—	115	—
Virginia	557	.3	S	S	S	S
West Virginia	62	—	49	—	54	—
EAST SOUTH CENTRAL STATES						
Alabama	3 266	2.0	6 871	1.2	3 437	1.4
Kentucky	2 145	1.3	7 509	1.3	6 851	2.7
Mississippi	6 057	3.8	6 388	1.1	1 399	.6
Tennessee	2 930	1.8	3 774	.7	2 235	.9
WEST SOUTH CENTRAL STATES						
Arkansas	2 419	1.5	9 439	1.7	2 616	1.0
Louisiana	76 181	47.8	345 241	61.5	11 775	4.7
Oklahoma	1 315	.8	1 381	.2	1 045	.4
Texas	18 057	11.3	23 793	4.2	6 726	2.7
MOUNTAIN STATES						
Arizona	199	.1	10	—	15	—
Colorado	244	.2	S	S	S	S
Idaho	155	.1	128	—	284	.1
Montana	16	—	S	S	S	S
Nevada	S	S	43	—	87	—
New Mexico	53	—	93	—	89	—
Utah	89	—	S	S	S	S
Wyoming	S	S	S	S	S	S
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	4 029	2.5	S	S	S	S
Hawaii	S	S	S	S	S	S
Oregon	136	.1	75	—	199	—
Washington	S	S	114	—	298	.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	139 843	118 795	17.7	495 703	392 334	26.3	131 293	115 138	14.0	214	205	4.7
Single modes	130 528	105 506	23.7	479 467	342 802	39.9	124 940	107 898	15.8	109	138	-20.7
Truck ²	55 481	52 426	5.8	130 369	121 245	7.5	S	20 921	S	93	93	-
Rail	17 128	18 561	-7.7	29 927	40 117	-25.4	25 986	30 618	-15.1	983	895	9.9
Water	35 103	16 635	111.0	220 917	99 142	122.8	55 069	44 764	23.0	S	417	S
Air (includes truck and air)	133	466	-71.4	5	8	-37.9	6	7	-12.7	1 364	1 166	17.0
Pipeline ³	22 681	17 418	30.2	98 249	82 290	19.4	S	S	S	S	S	S
Multiple modes	5 644	4 612	22.4	3 780	6 086	-37.9	5 521	4 687	17.8	601	578	3.9
Parcel, U.S. Postal Service or courier ..	4 792	3 225	48.6	193	97	98.9	110	50	121.0	599	576	4.0
Truck and rail	321	510	-37.2	344	575	-40.1	390	761	-48.7	1 330	1 532	-13.2
All other multiple modes	531	S	S	3 243	5 414	-40.1	5 021	3 876	29.5	1 188	783	51.7
Other and unknown modes ...	3 672	8 678	-57.7	S	43 446	S	S	2 553	S	78	46	69.5

- 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.
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	139 843	118 795	17.7	495 703	392 334	26.3	131 293	115 138	14.0	214	205	4.7
01-05	Agricultural products and fish	17 039	11 543	47.6	135 571	59 012	129.7	7 072	2 964	138.6	S	S	S
06-09	Grains, alcohol, and tobacco products	6 715	7 604	-11.7	8 289	8 908	-7.0	2 548	2 082	22.4	56	76	-26.4
10-14	Stones, nonmetallic minerals, and metallic ores	401	433	-7.4	34 758	37 686	-7.8	3 003	S	S	78	50	55.6
15-19	Coal and petroleum products	40 444	29 428	37.4	194 657	145 049	34.2	51 750	34 876	48.4	S	S	S
20-24	Basic chemicals, chemical, and pharmaceutical products	37 949	33 550	13.1	79 216	80 174	-1.2	52 171	41 060	27.1	282	161	75.7
25-30	Logs, wood products, and textile and leather	11 226	14 890	-24.6	21 525	43 013	-50.0	11 182	18 561	-39.8	190	575	-66.9
31-34	Base metal and machinery ..	9 266	8 907	4.0	S	13 982	S	2 107	3 385	-37.7	132	166	-20.6
35-38	Electronic, motorized vehicles, and precision instruments	8 465	7 522	12.5	1 131	799	41.7	S	629	S	171	140	22.2
39-43	Furniture, mixed freight and misc. manufactured prod. ..	8 232	4 583	79.6	2 716	2 695	.8	559	564	-1.0	437	403	8.2
--	Commodity unknown	108	335	-67.7	216	S	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).

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	3.9	—	6.5	—	17.8	—	11.8
Single modes	3.8	.9	6.7	1.5	19.1	2.0	15.2
Truck	5.8	1.6	17.2	3.6	S	S	18.2
For-hire truck	8.1	1.7	23.7	3.2	S	S	12.1
Private truck	8.1	1.0	16.4	1.3	18.3	.8	19.6
Rail	13.8	1.7	10.8	.8	12.2	2.9	5.2
Water	10.1	2.3	15.4	5.0	10.3	3.2	S
Shallow draft	16.0	2.1	16.2	3.9	14.0	4.2	29.4
Great Lakes	—	—	—	—	—	—	—
Deep draft	30.3	3.7	32.2	7.4	26.9	4.6	S
Air (includes truck and air)	45.5	—	25.8	—	23.4	—	6.6
Pipeline	17.7	2.8	16.8	4.1	S	S	S
Multiple modes	13.0	.6	30.8	.2	41.4	2.1	8.2
Parcel, U.S. Postal Service or courier	15.2	.6	16.1	—	23.2	—	8.6
Truck and rail	37.7	—	44.6	—	35.2	.2	18.4
Truck and water	S	S	S	S	S	S	27.2
Rail and water	S	S	S	S	S	S	S
Other multiple modes	S	S	S	S	S	S	S
Other and unknown modes	41.9	.9	S	S	S	S	27.9

— 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-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 .....	.9	1.7	1.5	2.8	2.0	1.9
Truck	1.6	1.9	3.6	3.4	S	2.8
For-hire truck	1.7	1.5	3.2	2.3	S	2.4
Private truck	1.0	1.3	1.3	2.7	.8	.8
Rail	1.7	1.5	.8	2.3	2.9	3.6
Water	2.3	1.9	5.0	4.2	3.2	5.6
Shallow draft	2.1	2.2	3.9	4.3	4.2	3.9
Great Lakes	—	—	—	—	—	—
Deep draft	3.7	.8	7.4	1.3	4.6	2.4
Air (includes truck and air)	—	.1	—	—	—	—
Pipeline	2.8	1.4	4.1	2.8	S	S
Multiple modes .....	.6	.4	.2	.7	2.1	1.8
Parcel, U.S. Postal Service or courier .....	.6	.2	—	—	—	—
Truck and rail	—	.1	—	—	.2	.2
Truck and water	S	—	S	.1	S	.5
Rail and water	S	—	S	—	S	—
Other multiple modes	S	S	S	S	S	S
Other and unknown modes .....	.9	1.8	S	3.1	S	.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-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	17.8	—	11.8
Truck	S	S	18.2
Rail	12.2	2.9	5.2
Shallow draft	14.0	4.2	29.4
Great Lakes	—	—	—
Deep draft	26.9	4.6	S
Air	23.4	—	6.6
Parcel, U.S. Postal Service or courier	37.5	3.1	30.8
Pipeline	S	S	S
Other and unknown modes	S	S	27.9

— 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-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	3.9	—	6.5	—	17.8	—
Less than 50 miles	6.1	1.9	9.6	2.7	18.7	1.3
50 to 99 miles	11.0	1.2	13.5	1.3	18.6	.7
100 to 249 miles	20.0	1.8	10.7	.9	8.8	.9
250 to 499 miles	6.5	.9	12.1	1.1	13.1	2.3
500 to 749 miles	13.8	1.3	19.8	1.2	17.8	3.1
750 to 999 miles	13.2	1.0	13.7	.5	13.5	2.8
1,000 to 1,499 miles	10.2	.5	S	S	S	S
1,500 to 1,999 miles	16.4	.3	17.3	.1	30.3	1.9
2,000 miles or more	34.1	.1	S	S	S	S
Single modes	3.8	—	6.7	—	19.1	—
Less than 50 miles	5.9	1.9	10.1	3.0	19.2	1.4
50 to 99 miles	10.7	1.2	13.1	1.2	19.0	.7
100 to 249 miles	16.1	1.4	10.8	1.1	8.8	.9
250 to 499 miles	7.9	.9	12.4	1.2	13.5	2.4
500 to 749 miles	15.3	1.3	20.1	1.2	18.2	3.7
750 to 999 miles	14.3	1.0	15.6	.6	16.0	3.1
1,000 to 1,499 miles	12.8	.6	S	S	S	S
1,500 to 1,999 miles	14.5	.3	17.0	—	30.1	1.9
2,000 miles or more	35.1	.1	S	S	S	S
Truck	5.8	—	17.2	—	S	S
Less than 50 miles	9.4	2.5	25.0	5.7	30.8	3.2
50 to 99 miles	15.4	1.7	10.5	1.6	11.1	1.7
100 to 249 miles	20.8	2.2	19.6	2.4	20.2	3.1
250 to 499 miles	8.1	.9	14.0	1.4	13.1	4.0
500 to 749 miles	10.2	.9	21.0	1.2	20.2	3.9
750 to 999 miles	7.6	.5	8.8	.3	9.1	2.3
1,000 to 1,499 miles	17.1	.9	S	S	S	S
1,500 to 1,999 miles	18.6	.4	17.8	.1	17.6	1.7
2,000 miles or more	30.8	—	45.8	—	46.1	.3
For-hire truck	8.1	—	23.7	—	S	S
Less than 50 miles	14.9	2.4	34.0	7.6	S	S
50 to 99 miles	22.8	1.6	18.5	2.6	18.1	1.4
100 to 249 miles	31.3	3.8	14.0	2.1	16.5	2.0
250 to 499 miles	10.5	1.3	11.5	2.4	11.6	4.6
500 to 749 miles	11.0	2.1	11.7	1.3	11.5	4.2
750 to 999 miles	8.1	.7	9.7	.7	10.0	3.3
1,000 to 1,499 miles	18.0	1.6	S	S	S	S
1,500 to 1,999 miles	18.2	.6	19.8	.3	20.0	2.2
2,000 miles or more	30.7	.1	45.9	—	46.3	.3
Private truck	8.1	—	16.4	—	18.3	—
Less than 50 miles	11.5	3.5	20.4	4.4	13.6	4.9
50 to 99 miles	11.4	2.2	20.9	1.7	21.7	2.3
100 to 249 miles	13.2	1.8	25.7	2.8	25.8	5.2
250 to 499 miles	23.1	1.1	35.5	1.2	34.0	2.9
500 to 749 miles	33.6	.3	S	S	S	S
750 to 999 miles	23.2	.1	22.0	—	23.6	.8
1,000 to 1,499 miles	23.6	.2	37.8	.2	38.2	2.8
1,500 to 1,999 miles	49.1	.1	S	S	S	S
2,000 miles or more	S	S	S	S	S	S
Rail	13.8	—	10.8	—	12.2	—
Less than 50 miles	30.7	1.2	25.2	1.1	22.5	—
50 to 99 miles	16.9	1.2	16.0	.9	15.6	.2
100 to 249 miles	21.5	1.2	21.0	2.1	20.9	.8
250 to 499 miles	14.3	3.4	9.2	1.9	8.7	1.7
500 to 749 miles	14.6	2.4	26.5	3.1	26.3	3.2
750 to 999 miles	29.7	2.9	16.3	2.5	16.8	3.0
1,000 to 1,499 miles	25.4	2.6	15.4	1.2	15.9	1.6
1,500 to 1,999 miles	20.8	1.0	11.8	.4	12.0	1.2
2,000 miles or more	49.3	.6	S	S	S	S
Water	10.1	—	15.4	—	10.3	—
Less than 50 miles	17.9	6.0	21.4	5.2	25.9	2.3
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	22.5	1.7	20.7	1.9	20.7	1.2
250 to 499 miles	15.2	2.0	17.6	2.7	20.0	3.8
500 to 749 miles	28.6	3.7	30.1	2.6	27.0	7.4
750 to 999 miles	39.3	3.3	28.3	.8	31.6	4.3
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
Shallow draft	16.0	—	16.2	—	14.0	—
Less than 50 miles	25.9	6.6	24.3	4.9	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	22.6	3.3	21.6	3.0	22.4	2.2
250 to 499 miles	14.5	2.4	16.6	1.6	19.9	4.0
500 to 749 miles	29.4	1.7	18.0	2.1	16.9	4.0
750 to 999 miles	39.3	4.3	28.3	2.4	31.6	6.3
1,000 to 1,499 miles	S	S	S	S	S	S
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	30.3	—	32.2	—	26.9	—
Less than 50 miles	33.6	8.1	34.1	8.3	35.2	5.4
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	36.4	5.8	37.9	4.8	37.1	11.1
750 to 999 miles	—	—	—	—	—	—
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
Air (includes truck and air)	45.5	—	25.8	—	23.4	—
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	44.7	9.2	43.8	9.9	45.4	9.9
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	38.3	10.2	S	S	S	S
1,500 to 1,999 miles	38.5	2.7	48.1	8.3	S	S
2,000 miles or more	S	S	S	S	S	S
Pipeline	17.7	—	16.8	—	S	S
Less than 50 miles	25.6	8.4	24.9	7.8	S	S
50 to 99 miles	28.3	8.5	27.5	8.4	S	S
100 to 249 miles	40.7	2.8	39.9	2.9	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
2,000 miles or more	—	—	—	—	S	S
Multiple modes	13.0	—	30.8	—	41.4	—
Less than 50 miles	27.4	2.9	36.2	2.1	S	S
50 to 99 miles	32.1	2.0	S	S	S	S
100 to 249 miles	19.7	1.6	32.3	2.5	34.7	1.7
250 to 499 miles	21.8	3.1	S	S	S	S
500 to 749 miles	30.6	2.4	S	S	S	S
750 to 999 miles	24.7	3.9	S	S	S	S
1,000 to 1,499 miles	17.8	2.6	S	S	S	S
1,500 to 1,999 miles	36.2	2.1	S	S	S	S
2,000 miles or more	44.7	.3	S	S	S	S
Parcel, U.S. Postal Service or courier	15.2	—	16.1	—	23.2	—
Less than 50 miles	27.7	3.9	25.1	6.2	19.1	.8
50 to 99 miles	18.0	1.6	23.0	4.6	25.1	1.6
100 to 249 miles	20.9	1.6	33.7	3.2	31.1	1.7
250 to 499 miles	21.4	2.6	23.2	3.5	24.4	3.9
500 to 749 miles	31.1	2.3	30.7	3.0	30.6	3.0
750 to 999 miles	25.9	1.6	24.9	1.8	25.2	2.0
1,000 to 1,499 miles	26.1	2.5	46.3	2.9	S	S
1,500 to 1,999 miles	42.6	2.1	29.6	.7	31.2	3.7
2,000 miles or more	48.4	.4	46.3	.2	45.8	.9
Truck and rail	37.7	—	44.6	—	35.2	—
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	44.3	10.5	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	48.4	13.6	46.1	13.0
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	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	—	—	—	—	—	—
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	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	—	—	—	—	—	—
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
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	S	S	S	S	S	S
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	S	S	S	S	S	S
Other and unknown modes	41.9	—	S	S	S	S
Less than 50 miles	33.4	9.2	S	S	46.1	7.5
50 to 99 miles	46.9	1.5	45.8	.7	42.5	1.7
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	36.5	2.5	32.2	2.1	29.1	6.4
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	45.7	2.8	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	S	S	S	S	S	S

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

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	3.9	—	6.5	—	17.8	—	11.8
Less than 50 lb	22.3	1.1	11.3	—	23.4	—	17.8
50 to 99 lb	16.3	.3	17.8	—	22.9	—	13.0
100 to 499 lb	16.9	.8	18.8	—	20.8	—	13.2
500 to 749 lb	13.1	.2	22.5	—	21.7	—	29.0
750 to 999 lb	13.5	.1	20.2	—	26.9	—	14.8
1,000 to 9,999 lb	23.2	1.8	13.9	.2	23.0	.1	17.2
10,000 to 49,999 lb	6.0	1.1	23.5	2.4	13.0	1.8	13.5
50,000 to 99,999 lb	14.9	.6	30.8	2.2	20.3	.8	20.3
100,000 lb or more	3.2	1.4	7.7	2.9	20.8	2.0	5.1
Single modes	3.8	—	6.7	—	19.1	—	15.2
Less than 50 lb	40.9	1.4	13.4	—	27.9	—	19.7
50 to 99 lb	17.8	.2	20.8	—	23.5	—	39.0
100 to 499 lb	18.3	.7	20.3	—	21.8	—	25.4
500 to 749 lb	14.3	.2	22.5	—	20.9	—	39.3
750 to 999 lb	15.7	.1	20.9	—	20.2	—	19.6
1,000 to 9,999 lb	23.6	1.8	13.8	.2	23.1	.1	16.9
10,000 to 49,999 lb	6.3	1.2	13.2	1.3	12.4	1.7	9.3
50,000 to 99,999 lb	12.4	.5	31.9	2.2	21.2	.8	20.2
100,000 lb or more	3.2	1.6	7.6	2.4	22.2	2.1	5.1
Truck²	5.8	—	17.2	—	S	S	18.2
Less than 50 lb	41.2	2.9	13.3	—	31.1	—	23.6
50 to 99 lb	15.6	.4	21.0	—	25.9	—	42.4
100 to 499 lb	18.4	1.7	20.3	.3	22.8	.3	25.1
500 to 749 lb	14.5	.4	22.5	.2	21.6	—	40.1
750 to 999 lb	15.7	.4	21.0	—	20.2	—	19.6
1,000 to 9,999 lb	11.7	1.5	14.1	.7	12.3	.8	17.9
10,000 to 49,999 lb	6.9	2.1	13.5	6.8	12.1	13.2	9.1
50,000 to 99,999 lb	15.0	1.3	32.9	5.1	27.1	5.0	15.8
100,000 lb or more	31.4	1.8	44.4	8.1	S	S	36.9
For-hire truck	8.1	—	23.7	—	S	S	12.1
Less than 50 lb	S	S	S	S	S	S	22.4
50 to 99 lb	39.1	.5	29.0	—	32.0	—	9.8
100 to 499 lb	35.6	2.4	24.0	—	23.2	.2	10.0
500 to 749 lb	22.5	.2	23.2	—	22.2	—	20.9
750 to 999 lb	23.4	.3	28.0	—	22.2	—	21.5
1,000 to 9,999 lb	18.9	2.0	16.3	.5	15.3	1.0	9.6
10,000 to 49,999 lb	7.2	3.4	8.6	7.8	10.1	16.1	4.4
50,000 to 99,999 lb	14.4	1.2	47.3	6.4	31.9	3.3	18.0
100,000 lb or more	43.2	2.6	S	S	S	S	20.0
Private truck	8.1	—	16.4	—	18.3	—	19.6
Less than 50 lb	18.5	2.2	18.2	—	24.1	—	22.5
50 to 99 lb	18.7	.7	22.8	.1	29.7	—	19.8
100 to 499 lb	22.3	2.0	23.2	.8	37.4	.6	17.9
500 to 749 lb	21.8	1.0	25.4	.3	39.5	.2	17.6
750 to 999 lb	19.0	.7	25.5	.2	42.2	.2	15.8
1,000 to 9,999 lb	14.8	2.8	17.8	1.8	19.9	1.5	17.5
10,000 to 49,999 lb	14.9	3.2	23.1	6.4	32.8	7.4	14.2
50,000 to 99,999 lb	22.4	2.1	20.4	4.8	40.4	6.9	17.5
100,000 lb or more	49.0	1.8	S	S	29.3	4.5	S
Rail	13.8	—	10.8	—	12.2	—	5.2
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	S	S	S	S	S	S	31.6
100 to 499 lb	S	S	S	S	S	S	29.9
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	25.3
10,000 to 49,999 lb	34.5	1.3	34.9	.3	46.7	.8	14.4
50,000 to 99,999 lb	33.9	.7	24.1	.9	36.7	.8	12.8
100,000 lb or more	9.3	7.1	11.1	1.3	12.6	1.6	3.6
Water	10.1	—	15.4	—	10.3	—	S
Less than 50 lb	S	S	S	S	S	S	S
50 to 99 lb	S	S	S	S	S	S	31.6
100 to 499 lb	S	S	S	S	S	S	31.6
500 to 749 lb	—	—	—	—	—	—	—
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	40.6	S	S	S	S
50,000 to 99,999 lb	S	S	S	S	S	S	32.7
100,000 lb or more	10.1	.6	15.4	.2	10.3	—	10.3
Shallow draft	16.0	—	16.2	—	14.0	—	29.4
Less than 50 lb	S	S	S	S	S	S	31.6
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	S
10,000 to 49,999 lb	44.4	.1	43.4	.1	S	S	31.9
50,000 to 99,999 lb	S	S	S	S	S	S	32.7
100,000 lb or more	15.9	.3	16.2	.2	14.0	—	10.4

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	30.3	—	32.2	—	26.9	—	S
Less than 50 lb	S	S	S	S	S	S	31.6
50 to 99 lb	S	S	S	S	S	S	31.6
100 to 499 lb	S	S	S	S	S	S	31.6
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	S
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	30.3	1.7	32.2	—	26.9	—	18.4
Air (includes truck and air)	45.5	—	25.8	—	23.4	—	6.6
Less than 50 lb	36.9	13.1	S	S	S	S	11.6
50 to 99 lb	S	S	S	S	S	S	21.6
100 to 499 lb	37.4	7.1	S	S	48.6	11.9	20.3
500 to 749 lb	S	S	S	S	S	S	33.8
750 to 999 lb	S	S	S	S	S	S	31.6
1,000 to 9,999 lb	S	S	S	S	S	S	24.2
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Pipeline³	17.7	—	16.8	—	S	S	S
Less than 50 lb	—	—	—	—	S	S	S
50 to 99 lb	—	—	—	—	S	S	S
100 to 499 lb	S	S	S	S	S	S	S
500 to 749 lb	—	—	—	—	S	S	S
750 to 999 lb	—	—	—	—	S	S	S
1,000 to 9,999 lb	S	S	S	S	S	S	S
10,000 to 49,999 lb	35.8	—	40.5	—	S	S	S
50,000 to 99,999 lb	S	S	S	S	S	S	S
100,000 lb or more	17.7	.1	16.8	.1	S	S	S
Multiple modes	13.0	—	30.8	—	41.4	—	8.2
Less than 50 lb	15.3	5.8	20.3	1.9	32.3	.9	8.8
50 to 99 lb	18.2	1.4	15.8	1.6	26.4	.8	15.4
100 to 499 lb	31.0	3.8	25.0	3.8	22.6	1.8	14.7
500 to 749 lb	46.4	.7	43.9	.4	S	S	35.8
750 to 999 lb	37.4	.6	44.9	.9	S	S	26.5
1,000 to 9,999 lb	S	S	S	S	S	S	41.6
10,000 to 49,999 lb	S	S	47.3	3.7	40.9	10.6	32.3
50,000 to 99,999 lb	S	S	S	S	S	S	31.6
100,000 lb or more	37.1	4.2	33.5	11.1	43.8	13.2	22.0
Parcel, U.S. Postal Service or courier	15.2	—	16.1	—	23.2	—	8.6
Less than 50 lb	15.3	4.6	20.3	4.4	32.3	5.0	8.8
50 to 99 lb	18.2	1.2	15.8	2.6	26.4	2.4	15.4
100 to 499 lb	31.0	3.8	25.0	5.2	22.6	5.1	14.7
500 to 749 lb	46.4	1.3	43.9	1.8	S	S	35.8
750 to 999 lb	37.8	.8	45.3	4.1	S	S	26.3
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	37.7	—	44.6	—	35.2	—	18.4
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	25.6
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	47.9	13.7	46.2	13.7	37.0	13.5	26.8
Truck and water	S	S	S	S	S	S	27.2
Less than 50 lb	S	S	S	S	S	S	29.8
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	32.0
10,000 to 49,999 lb	S	S	S	S	S	S	31.6
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	25.7

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	S
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	S
Other multiple modes	S	S	S	S	S	S	S
Less than 50 lb	S	S	S	S	S	S	31.6
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	S	S	S	S	30.7
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	29.8
Other and unknown modes	41.9	—	S	S	S	S	27.9
Less than 50 lb	41.4	7.6	36.1	.3	S	S	30.7
50 to 99 lb	29.0	2.0	28.9	.1	S	S	27.6
100 to 499 lb	S	S	45.7	1.0	S	S	24.1
500 to 749 lb	44.9	.4	S	S	S	S	30.3
750 to 999 lb	S	S	S	S	S	S	S
1,000 to 9,999 lb	32.8	4.3	S	S	36.8	9.1	S
10,000 to 49,999 lb	39.3	7.1	S	S	S	S	S
50,000 to 99,999 lb	S	S	31.4	12.5	S	S	S
100,000 lb or more	46.1	2.6	40.9	9.4	S	S	31.1

— 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.

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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	3.9	—	6.5	—	17.8	—	11.8
01	Live animals and live fish	—	—	—	—	—	—	—
02	Cereal grains	23.6	1.5	24.3	3.9	31.3	.8	S
03	Other agricultural products	32.6	1.6	34.4	2.3	43.0	.5	22.7
04	Animal feed and products of animal origin, n.e.c.	S	S	49.8	1.1	S	S	S
05	Meat, fish, seafood, and their preparations	35.1	.2	30.4	—	36.6	—	S
06	Milled grain products and preparations, and bakery products	33.4	—	S	S	S	S	S
07	Other prepared foodstuffs and fats and oils	13.3	.4	21.5	.3	33.9	.6	S
08	Alcoholic beverages	18.2	.2	23.3	—	18.9	—	10.9
09	Tobacco products	39.3	.2	49.7	—	S	S	26.2
10	Monumental or building stone	S	S	S	S	S	S	31.6
11	Natural sands	35.6	—	S	S	45.9	.5	S
12	Gravel and crushed stone	S	S	37.4	.8	42.7	.4	30.6
13	Nonmetallic minerals n.e.c.	46.8	—	39.2	.2	S	S	44.4
14	Metallic ores and concentrates	S	S	S	S	S	S	S
15	Coal	S	S	S	S	S	S	27.9
17	Gasoline and aviation turbine fuel	11.9	1.8	11.9	2.7	20.2	4.5	25.5
18	Fuel oils	18.6	1.8	16.5	2.7	27.0	3.6	S
19	Coal and petroleum products, n.e.c.	14.4	.7	16.9	1.2	33.3	3.1	S
20	Basic chemicals	13.4	1.9	12.2	1.4	10.2	1.9	21.8
21	Pharmaceutical products	S	S	S	S	S	S	S
22	Fertilizers	31.4	.5	S	S	S	S	45.8
23	Chemical products and preparations, n.e.c.	18.7	.8	19.5	—	26.9	.5	37.5
24	Plastics and rubber	12.5	.7	16.1	.2	17.7	.8	31.3
25	Logs and other wood in the rough	S	S	S	S	45.5	—	46.3
26	Wood products	37.6	.9	18.5	.4	11.8	.6	S
27	Pulp, newsprint, paper, and paperboard	7.8	.3	7.4	.1	7.7	.6	9.6
28	Paper or paperboard articles	47.0	.2	40.9	—	S	S	21.1
29	Printed products	27.9	—	34.6	—	43.0	—	41.5
30	Textiles, leather, and articles of textiles or leather	S	S	44.7	—	41.1	—	16.1
31	Nonmetallic mineral products	33.0	.2	S	S	23.3	.1	S
32	Base metal in primary or semifinished forms and in finished basic shapes	21.0	.2	26.7	.1	26.4	.1	S
33	Articles of base metal	21.8	.6	25.3	.1	41.5	.3	33.9
34	Machinery	15.6	.3	21.4	—	19.3	—	26.7
35	Electronic and other electrical equipment and components and office equipment	28.2	.5	33.8	—	16.2	—	47.7
36	Motorized and other vehicles (including parts)	S	S	S	S	S	S	S
37	Transportation equipment, n.e.c.	S	S	S	S	S	S	31.4
38	Precision instruments and apparatus	30.5	.3	37.4	—	S	S	16.5
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	33.1	.1	33.2	—	28.5	—	43.8
40	Miscellaneous manufactured products	24.5	.6	27.3	—	25.0	—	20.2
41	Waste and scrap	S	S	S	S	S	S	S
43	Mixed freight	21.2	.6	27.3	—	35.7	—	38.5
--	Commodity unknown	14.5	—	23.4	—	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.

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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
02	Cereal grains	1.5	1.6	3.9	2.9	.8	.6
03	Other agricultural products	1.6	1.1	2.3	1.5	.5	.3
04	Animal feed and products of animal origin, n.e.c.	S	.2	1.1	.4	S	.2
05	Meat, fish, seafood, and their preparations .....	.2	.2	-	-	-	-
06	Milled grain products and preparations, and bakery products	-	.3	S	S	S	.1
07	Other prepared foodstuffs and fats and oils .....	.4	.9	.3	.6	.6	.6
08	Alcoholic beverages .....	.2	-	-	-	-	-
09	Tobacco products .....	.2	S	-	S	S	S
10	Monumental or building stone	S	-	S	-	S	-
11	Natural sands	-	-	S	S	.5	S
12	Gravel and crushed stone	S	S	.8	1.9	.4	.3
13	Nonmetallic minerals n.e.c.	-	-	.2	-	S	S
14	Metallic ores and concentrates	S	-	S	S	S	-
15	Coal	S	-	S	.3	S	-
17	Gasoline and aviation turbine fuel	1.8	1.1	2.7	2.3	4.5	3.5
18	Fuel oils	1.8	1.2	2.7	1.7	3.6	1.2
19	Coal and petroleum products, n.e.c. ....	.7	.9	1.2	1.6	3.1	1.6
20	Basic chemicals	1.9	1.2	1.4	2.9	1.9	3.5
21	Pharmaceutical products	S	.2	S	-	S	-
22	Fertilizers .....	.5	.5	S	.9	S	2.2
23	Chemical products and preparations, n.e.c. ....	.8	.8	-	.4	.5	1.4
24	Plastics and rubber .....	.7	.8	.2	.5	.8	1.0
25	Logs and other wood in the rough	S	-	S	S	-	S
26	Wood products .....	.9	S	.4	S	.6	S
27	Pulp, newsprint, paper, and paperboard .....	.3	.2	.1	.2	.6	.8
28	Paper or paperboard articles .....	.2	.3	-	.1	S	.2
29	Printed products	-	-	-	-	-	-
30	Textiles, leather, and articles of textiles or leather	S	1.1	-	-	-	-
31	Nonmetallic mineral products .....	.2	.2	S	S	.1	-
32	Base metal in primary or semifinished forms and in finished basic shapes .....	.2	.2	.1	.1	.1	.6
33	Articles of base metal .....	.6	.3	.1	S	.3	S
34	Machinery .....	.3	.4	-	-	-	-
35	Electronic and other electrical equipment and components and office equipment .....	.5	.2	-	-	-	-
36	Motorized and other vehicles (including parts)	S	1.2	S	-	S	S
37	Transportation equipment, n.e.c.	S	.1	S	-	S	S
38	Precision instruments and apparatus .....	.3	.2	-	-	S	-
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs .....	.1	-	-	-	-	-
40	Miscellaneous manufactured products .....	.6	.3	-	-	-	-
41	Waste and scrap	S	.1	S	.1	S	-
43	Mixed freight .....	.6	.3	-	-	-	-
--	Commodity unknown	-	.2	-	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	3.9	—	6.5	—	17.8	—	11.8
Single modes	3.8	.9	6.7	1.5	19.1	2.0	15.2
Truck	5.8	1.6	17.2	3.6	S	S	18.2
For-hire truck	8.1	1.7	23.7	3.2	S	S	12.1
Private truck	8.1	1.0	16.4	1.3	18.3	.8	19.6
Rail	13.8	1.7	10.8	.8	12.2	2.9	5.2
Water	10.1	2.3	15.4	5.0	10.3	3.2	S
Shallow draft	16.0	2.1	16.2	3.9	14.0	4.2	29.4
Great Lakes	—	—	—	—	—	—	—
Deep draft	30.3	3.7	32.2	7.4	26.9	4.6	S
Air (includes truck and air)	45.5	—	25.8	—	23.4	—	6.6
Pipeline	17.7	2.8	16.8	4.1	S	S	S
Multiple modes	13.0	.6	30.8	.2	41.4	2.1	8.2
Parcel, U.S. Postal Service or courier	15.2	.6	16.1	—	23.2	—	8.6
Truck and rail	37.7	—	44.6	—	35.2	.2	18.4
Truck and water	S	S	S	S	S	S	27.2
Rail and water	S	S	S	S	S	S	S
Other multiple modes	S	S	S	S	S	S	S
Other and unknown modes	41.9	.9	S	S	S	S	27.9
SCTG 01, LIVE ANIMALS AND LIVE FISH							
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 02, CEREAL GRAINS							
Total	23.6	—	24.3	—	31.3	—	S
Single modes	23.6	.4	24.3	.4	32.1	10.0	22.9
Truck	38.0	12.3	49.1	12.4	48.1	9.4	24.9
For-hire truck	S	S	S	S	S	S	27.7
Private truck	S	S	S	S	S	S	23.4
Rail	—	—	—	—	—	—	—
Water	27.4	12.5	27.8	12.7	33.3	13.2	20.0
Shallow draft	S	S	S	S	S	S	29.6
Great Lakes	—	—	—	—	—	—	—
Deep draft	34.8	15.5	34.3	15.9	35.9	17.8	21.0
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	S	S	S	S	S	S	31.6
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 03, OTHER AGRICULTURAL PRODUCTS							
Total	32.6	—	34.4	—	43.0	—	22.7
Single modes	32.7	.3	34.4	—	43.0	.4	17.5
Truck	S	S	S	S	S	S	24.1
For-hire truck	S	S	S	S	S	S	38.9
Private truck	44.4	5.7	S	S	S	S	25.5
Rail	—	—	—	—	—	—	—
Water	42.6	10.9	42.0	10.0	46.4	12.8	18.5
Shallow draft	49.9	11.2	48.2	13.4	S	S	32.5
Great Lakes	—	—	—	—	—	—	—
Deep draft	47.2	16.0	46.0	17.5	47.0	18.9	21.7
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	29.7
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	29.7
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 04, ANIMAL FEED AND PRODUCTS OF ANIMAL ORIGIN, N.E.C.							
Total	S	S	49.8	—	S	S	S
Single modes	S	S	49.8	.1	S	S	S
Truck	49.3	9.6	41.7	9.8	S	S	44.5
For-hire truck	47.1	11.3	S	S	S	S	29.6
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	31.6
Water	S	S	S	S	S	S	31.6
Shallow draft	S	S	S	S	S	S	31.6
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	26.5
Parcel, U.S. Postal Service or courier	S	S	49.2	—	48.6	—	26.7
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	—	—	—	—	—	—	—
SCTG 05, MEAT, FISH, SEAFOOD, AND THEIR PREPARATIONS							
Total	35.1	—	30.4	—	36.6	—	S
Single modes	35.1	—	30.4	—	36.6	—	S
Truck	35.1	—	30.4	—	36.6	—	S
For-hire truck	33.2	14.0	32.0	11.8	42.2	11.3	25.3
Private truck	S	S	S	S	S	S	32.2
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	29.9
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	29.9
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	33.4	—	S	S	S	S	S
Single modes	33.9	1.2	S	S	S	S	S
Truck	31.2	6.9	37.6	8.6	S	S	S
For-hire truck	31.9	7.1	36.7	8.9	S	S	S
Private truck	S	S	S	S	S	S	41.4
Rail	S	S	S	S	S	S	24.0
Water	S	S	S	S	S	S	31.6
Shallow draft	S	S	S	S	S	S	31.6
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	31.6
SCTG 07, OTHER PREPARED FOODSTUFFS AND FATS AND OILS							
Total	13.3	—	21.5	—	33.9	—	S
Single modes	12.8	.9	21.6	.7	33.7	.6	S
Truck	14.2	3.8	23.3	6.2	28.1	11.6	S
For-hire truck	21.6	9.8	34.5	9.2	31.3	10.4	23.0
Private truck	37.2	8.5	37.5	6.7	17.2	5.7	S
Rail	47.4	2.9	S	S	S	S	21.0
Water	S	S	S	S	S	S	29.8
Shallow draft	S	S	S	S	S	S	29.8
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	47.7	.7	S	S	25.0
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	30.1
Truck and rail	S	S	S	S	S	S	31.6
Truck and water	S	S	S	S	S	S	31.6
Rail and water	S	S	S	S	S	S	29.8
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	38.0
SCTG 08, ALCOHOLIC BEVERAGES							
Total	18.2	—	23.3	—	18.9	—	10.9
Single modes	18.2	.8	23.7	1.7	19.0	1.0	11.1
Truck	18.2	.8	23.7	1.7	19.0	1.0	11.1
For-hire truck	S	S	S	S	S	S	31.6
Private truck	18.2	.8	23.8	1.6	19.0	1.0	11.1
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	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	29.9

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	39.3	—	49.7	—	S	S	26.2
Single modes	39.3	—	49.7	—	S	S	26.2
Truck	39.3	—	49.7	—	S	S	26.2
For-hire truck	—	—	—	—	—	—	—
Private truck	39.3	—	49.7	—	S	S	26.2
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	31.4
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	—	—	—	—	—	—	—
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 11, NATURAL SANDS							
Total	35.6	—	S	S	45.9	—	S
Single modes	40.3	6.8	S	S	S	S	23.0
Truck	40.3	6.8	S	S	S	S	23.0
For-hire truck	S	S	S	S	S	S	S
Private truck	32.7	12.0	33.6	11.4	29.1	14.1	16.3
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	36.6	4.7	S	S	32.6

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 12, GRAVEL AND CRUSHED STONE							
Total	S	S	37.4	—	42.7	—	30.6
Single modes	S	S	38.1	3.6	44.5	3.3	29.1
Truck	S	S	38.1	3.6	44.5	3.3	29.1
For-hire truck	31.0	10.9	32.3	9.9	42.0	11.1	22.3
Private truck	S	S	44.8	8.9	49.0	11.5	43.6
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	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	37.4	3.6	47.3	3.3	S
SCTG 13, NONMETALLIC MINERALS N.E.C.							
Total	46.8	—	39.2	—	S	S	44.4
Single modes	46.8	—	39.2	—	S	S	44.4
Truck	S	S	39.7	11.3	33.5	19.3	47.5
For-hire truck	S	S	37.1	11.9	35.6	14.8	25.5
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	27.0
Water	S	S	S	S	S	S	27.0
Shallow draft	S	S	S	S	S	S	27.0
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 14, METALLIC ORES AND CONCENTRATES							
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	31.6
Private truck	S	S	S	S	44.7	9.4	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	S	S	S	S	S	S	31.6
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 15, COAL							
Total	S	S	S	S	S	S	27.9
Single modes	S	S	S	S	S	S	27.9
Truck	S	S	S	S	S	S	27.9
For-hire truck	S	S	S	S	S	S	27.9
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 17, GASOLINE AND AVIATION TURBINE FUEL							
Total	11.9	-	11.9	-	20.2	-	25.5
Single modes	11.9	.2	11.9	.2	20.2	-	25.6
Truck	24.4	3.1	24.7	2.4	47.5	1.2	17.6
For-hire truck	21.8	1.4	22.4	1.1	30.6	.2	11.4
Private truck	29.9	2.4	29.9	1.8	S	S	23.9
Rail	S	S	S	S	S	S	31.6
Water	23.7	6.6	25.4	7.4	26.5	8.4	34.5
Shallow draft	39.2	3.0	35.1	3.2	38.7	8.3	23.7
Great Lakes	-	-	-	-	-	-	-
Deep draft	37.5	7.5	41.7	8.7	32.3	10.8	41.9
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	21.8	6.8	22.3	7.3	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	S	S	S	S	S	S	28.8
SCTG 18, FUEL OILS							
Total	18.6	-	16.5	-	27.0	-	S
Single modes	19.2	1.5	17.0	1.4	29.4	7.0	S
Truck	25.5	1.5	22.6	1.4	21.2	.3	S
For-hire truck	29.4	.8	31.1	.8	37.6	.1	21.5
Private truck	27.3	1.2	24.2	1.0	25.8	.3	S
Rail	S	S	S	S	S	S	28.6
Water	24.0	4.5	21.3	4.8	32.5	6.6	S
Shallow draft	29.2	6.0	26.4	6.2	47.9	9.3	S
Great Lakes	-	-	-	-	-	-	-
Deep draft	30.0	3.7	31.2	3.8	26.5	6.4	17.1
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	17.5	4.6	16.6	4.3	S	S	S
Multiple modes	S	S	S	S	S	S	28.5
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	S	S	S	S	S	S	30.0
Rail and water	-	-	-	-	-	-	-
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	S	S	S	S	S	S	31.5

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 19, COAL AND PETROLEUM PRODUCTS, N.E.C.							
Total	14.4	—	16.9	—	33.3	—	S
Single modes	16.0	5.1	17.5	4.1	26.8	6.4	S
Truck	S	S	31.3	5.4	S	S	S
For-hire truck	S	S	43.1	4.5	S	S	21.6
Private truck	22.5	.9	27.8	1.0	41.2	.4	S
Rail	29.5	3.7	22.8	1.3	27.7	6.7	12.8
Water	22.3	10.6	19.1	9.0	32.0	13.0	24.7
Shallow draft	26.5	11.6	20.9	9.8	34.0	13.7	22.4
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	S
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	30.3	5.4	29.5	4.0	S	S	S
Multiple modes	S	S	S	S	S	S	37.5
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	31.9
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	31.6
Rail and water	S	S	S	S	S	S	31.6
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	29.8
SCTG 20, BASIC CHEMICALS							
Total	13.4	—	12.2	—	10.2	—	21.8
Single modes	13.5	.4	12.5	.9	10.4	.9	21.2
Truck	29.9	4.7	29.6	2.5	33.0	3.1	24.7
For-hire truck	35.2	5.1	15.8	1.7	27.5	2.5	15.2
Private truck	28.9	1.4	S	S	S	S	19.3
Rail	13.0	3.3	9.2	3.1	9.5	3.3	3.7
Water	18.2	4.6	9.2	3.4	13.6	3.7	16.6
Shallow draft	18.1	4.9	10.5	3.9	14.4	4.1	15.2
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.7
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	24.7	4.7	22.8	4.9	S	S	S
Multiple modes	29.4	.3	39.4	.3	40.9	.9	S
Parcel, U.S. Postal Service or courier	S	S	44.5	—	S	S	S
Truck and rail	S	S	S	S	S	S	28.5
Truck and water	S	S	S	S	S	S	30.0
Rail and water	S	S	S	S	S	S	S
Other multiple modes	S	S	S	S	S	S	28.0
Other and unknown modes	S	S	S	S	S	S	S
SCTG 21, PHARMACEUTICAL PRODUCTS							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	39.7
Truck	S	S	S	S	S	S	39.9
For-hire truck	S	S	S	S	S	S	39.1
Private truck	S	S	S	S	S	S	29.4
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	S	S	S	S	S	S	17.9
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	17.9
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 22, FERTILIZERS							
Total	31.4	—	S	S	S	S	45.8
Single modes	31.5	.2	S	S	S	S	46.3
Truck	48.5	8.9	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	26.1
Private truck	48.5	5.5	42.4	4.5	S	S	S
Rail	S	S	26.5	13.2	27.8	16.3	15.3
Water	40.5	9.5	40.3	10.5	41.4	13.2	23.3
Shallow draft	40.5	9.5	40.3	10.5	41.4	13.2	23.3
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	44.5	3.6	46.2	3.3	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
SCTG 23, CHEMICAL PRODUCTS AND PREPARATIONS, N.E.C.							
Total	18.7	—	19.5	—	26.9	—	37.5
Single modes	18.4	2.6	20.2	4.9	27.0	1.1	S
Truck	21.2	6.5	35.6	8.4	46.5	7.8	42.4
For-hire truck	22.8	7.3	37.4	7.5	46.6	7.7	13.7
Private truck	S	S	S	S	S	S	S
Rail	36.4	6.6	23.5	10.0	23.4	8.3	9.9
Water	S	S	S	S	S	S	S
Shallow draft	S	S	S	S	S	S	30.5
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	S
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	38.5
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	37.6
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	S	S	S
SCTG 24, PLASTICS AND RUBBER							
Total	12.5	—	16.1	—	17.7	—	31.3
Single modes	14.5	5.3	16.8	2.5	17.8	1.3	39.6
Truck	14.5	4.7	18.0	4.3	26.7	3.6	45.6
For-hire truck	17.0	4.8	18.6	4.1	26.8	3.6	16.8
Private truck	44.8	2.9	29.1	.5	28.4	—	S
Rail	19.5	5.0	20.0	4.6	19.5	3.8	8.3
Water	S	S	S	S	S	S	31.6
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	S	S	S	S	S	S	30.3
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	44.2	1.3	19.7
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	19.7
Truck and rail	S	S	S	S	S	S	27.9
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	43.6	—	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	45.5	—	46.3
Single modes	S	S	S	S	45.6	.6	48.3
Truck	S	S	S	S	S	S	34.1
For-hire truck	S	S	S	S	S	S	26.1
Private truck	S	S	S	S	S	S	34.8
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	31.1
SCTG 26, WOOD PRODUCTS							
Total	37.6	—	18.5	—	11.8	—	S
Single modes	37.0	1.8	18.5	1.1	12.6	2.2	S
Truck	46.0	7.1	27.0	7.7	28.9	7.9	S
For-hire truck	12.1	5.9	27.4	4.6	12.0	3.1	21.0
Private truck	S	S	37.0	7.3	S	S	S
Rail	20.1	7.6	17.7	7.8	21.8	7.9	8.1
Water	S	S	S	S	S	S	31.6
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
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	49.8	—	S
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	42.5	.4	S	S	S
SCTG 27, PULP, NEWSPRINT, PAPER, AND PAPERBOARD							
Total	7.8	—	7.4	—	7.7	—	9.6
Single modes	8.2	1.3	8.2	1.9	8.3	1.6	9.5
Truck	11.7	4.0	8.0	3.2	12.9	4.7	14.2
For-hire truck	11.7	3.9	8.1	3.1	12.3	4.6	8.1
Private truck	28.0	.5	22.9	.5	S	S	S
Rail	11.9	4.5	12.1	3.6	13.8	5.3	4.1
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	31.8
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	31.3
Truck and rail	S	S	S	S	S	S	33.9
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	31.6
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	42.6	—	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 28, PAPER OR PAPERBOARD ARTICLES							
Total	47.0	—	40.9	—	S	S	21.1
Single modes	47.8	4.6	40.9	3.8	S	S	16.5
Truck	47.8	4.6	40.8	3.8	S	S	16.5
For-hire truck	S	S	44.6	11.8	S	S	22.4
Private truck	44.7	10.7	40.8	11.2	S	S	33.1
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	34.1	6.9	29.1
Parcel, U.S. Postal Service or courier	S	S	S	S	34.1	6.9	29.1
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 29, PRINTED PRODUCTS							
Total	27.9	—	34.6	—	43.0	—	41.5
Single modes	30.8	6.7	36.5	4.2	44.9	8.3	41.8
Truck	29.7	6.5	36.9	4.3	41.6	6.9	S
For-hire truck	S	S	38.6	12.4	43.2	15.7	20.8
Private truck	38.1	12.3	S	S	S	S	30.8
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	24.0
Pipeline	—	—	—	—	S	S	S
Multiple modes	36.3	5.8	43.1	2.3	42.4	8.1	38.5
Parcel, U.S. Postal Service or courier	36.3	5.8	43.1	2.3	42.4	8.1	38.5
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 30, TEXTILES, LEATHER, AND ARTICLES OF TEXTILES OR LEATHER							
Total	S	S	44.7	—	41.1	—	16.1
Single modes	S	S	44.7	10.8	41.3	14.7	25.1
Truck	S	S	44.7	10.9	41.4	16.6	26.2
For-hire truck	S	S	40.3	12.5	42.8	17.9	19.6
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	S	S	S	S	S	S	31.6
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	S	S	S	S	S	S	29.8
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	40.8	7.0	30.8	14.4	20.2
Parcel, U.S. Postal Service or courier	S	S	40.9	7.0	31.7	14.4	18.1
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	31.6
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	30.3

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	33.0	—	S	S	23.3	—	S
Single modes	20.9	9.4	33.8	18.3	27.1	8.0	S
Truck	21.2	9.2	35.6	17.2	24.5	11.9	S
For-hire truck	18.7	11.7	33.1	17.1	21.1	11.2	S
Private truck	34.9	7.4	49.5	7.3	44.8	5.9	S
Rail	S	S	S	S	S	S	29.8
Water	S	S	S	S	S	S	S
Shallow draft	S	S	S	S	S	S	31.6
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	S	S	S	S	S	S	28.1
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	29.3
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	31.6
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 32, BASE METAL IN PRIMARY OR SEMIFINISHED FORMS AND IN FINISHED BASIC SHAPES							
Total	21.0	—	26.7	—	26.4	—	S
Single modes	21.4	1.4	26.9	.4	26.4	.4	S
Truck	23.2	7.0	29.0	8.1	35.8	11.7	S
For-hire truck	36.0	6.2	38.8	8.4	40.0	9.0	23.2
Private truck	27.8	8.4	44.6	9.7	26.7	7.7	S
Rail	23.3	1.4	41.5	2.2	S	S	22.2
Water	42.5	6.2	42.5	7.1	42.8	11.5	25.9
Shallow draft	42.5	6.2	42.5	7.1	42.8	11.5	25.9
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.2
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	47.6	—	S	S	44.7
Parcel, U.S. Postal Service or courier	S	S	47.6	—	S	S	44.7
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 33, ARTICLES OF BASE METAL							
Total	21.8	—	25.3	—	41.5	—	33.9
Single modes	20.9	3.2	27.1	5.6	49.7	8.9	S
Truck	21.7	8.0	25.5	8.7	28.6	15.4	S
For-hire truck	22.1	6.5	23.9	9.6	30.7	13.5	29.2
Private truck	28.6	6.1	44.3	8.2	S	S	S
Rail	S	S	S	S	S	S	29.9
Water	S	S	S	S	S	S	30.0
Shallow draft	S	S	S	S	S	S	31.6
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	S	S	S	S	S	S	28.1
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	36.4	.6	S	S	34.7
Parcel, U.S. Postal Service or courier	S	S	37.0	.6	S	S	49.4
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	31.6
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 34, MACHINERY							
Total	15.6	—	21.4	—	19.3	—	26.7
Single modes	17.0	3.2	20.9	1.7	20.4	3.8	31.6
Truck	17.0	3.2	21.0	1.6	20.4	3.9	37.0
For-hire truck	24.7	6.9	29.3	7.7	22.1	4.7	17.7
Private truck	32.5	7.3	32.1	7.2	28.7	3.2	48.2
Rail	S	S	S	S	S	S	31.6
Water	S	S	S	S	S	S	31.6
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	S	S	S	S	S	S	23.4
Pipeline	—	—	—	—	S	S	S
Multiple modes	20.7	3.5	30.4	1.9	30.7	1.9	27.2
Parcel, U.S. Postal Service or courier	20.7	3.5	30.4	1.9	30.7	1.9	27.4
Truck and rail	—	—	—	—	—	—	—
Truck and water	S	S	S	S	S	S	31.6
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	42.5	1.0	S	S	S	S	S
SCTG 35, ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONENTS AND OFFICE EQUIPMENT							
Total	28.2	—	33.8	—	16.2	—	47.7
Single modes	35.9	7.3	35.6	4.1	16.6	3.4	S
Truck	37.2	6.5	38.0	6.0	20.1	5.5	S
For-hire truck	32.0	5.0	19.9	9.3	20.7	5.3	S
Private truck	49.3	8.3	S	S	S	S	S
Rail	S	S	S	S	S	S	27.9
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	26.7
Pipeline	—	—	—	—	S	S	S
Multiple modes	33.9	7.6	S	S	S	S	20.8
Parcel, U.S. Postal Service or courier	33.9	7.6	S	S	S	S	20.8
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 36, MOTORIZED AND OTHER VEHICLES (INCLUDING PARTS)							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	46.8
Truck	48.4	15.1	38.9	14.5	49.5	19.8	S
For-hire truck	S	S	S	S	S	S	27.0
Private truck	43.4	12.6	41.4	12.7	45.4	16.9	38.1
Rail	S	S	S	S	S	S	29.8
Water	S	S	S	S	S	S	31.6
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
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	41.5
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	28.5
Truck and rail	S	S	S	S	S	S	31.6
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	35.0

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	S	S	S	S	S	S	31.4
Single modes	S	S	S	S	S	S	31.3
Truck	S	S	S	S	S	S	32.8
For-hire truck	S	S	S	S	S	S	32.8
Private truck	-	-	-	-	-	-	-
Rail	-	-	-	-	-	-	-
Water	S	S	S	S	S	S	29.8
Shallow draft	S	S	S	S	S	S	29.8
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	-	-	-	-	-	-	-
SCTG 38, PRECISION INSTRUMENTS AND APPARATUS							
Total	30.5	-	37.4	-	S	S	16.5
Single modes	28.2	10.4	32.8	11.7	S	S	38.2
Truck	28.0	10.3	32.8	11.7	S	S	37.6
For-hire truck	41.3	9.2	47.3	10.2	S	S	49.7
Private truck	S	S	S	S	S	S	S
Rail	-	-	-	-	-	-	-
Water	S	S	S	S	S	S	31.6
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	-	-	-	-	S	S	S
Multiple modes	41.2	9.9	S	S	S	S	15.9
Parcel, U.S. Postal Service or courier	41.2	9.9	S	S	S	S	15.9
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	38.9
SCTG 39, FURNITURE, MATTRESSES AND MATTRESS SUPPORTS, LAMPS, LIGHTING FITTINGS, AND ILLUMINATED SIGNS							
Total	33.1	-	33.2	-	28.5	-	43.8
Single modes	34.0	12.0	34.1	11.3	31.8	13.5	S
Truck	34.1	11.9	34.1	11.3	31.8	13.4	S
For-hire truck	S	S	S	S	S	S	38.4
Private truck	37.5	14.2	35.4	14.5	41.0	14.7	32.4
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	S	S	46.7	11.4	S	S	24.1
Parcel, U.S. Postal Service or courier	S	S	46.7	11.4	S	S	24.1
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	28.2

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	24.5	—	27.3	—	25.0	—	20.2
Single modes	37.8	12.2	36.7	12.0	42.0	13.2	40.8
Truck	38.6	12.4	37.0	12.1	43.3	13.6	44.3
For-hire truck	S	S	S	S	49.6	14.0	24.2
Private truck	30.0	9.3	46.2	10.5	S	S	24.9
Rail	S	S	S	S	S	S	31.6
Water	S	S	S	S	S	S	31.6
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	44.7	.1	49.5	—	S	S	23.1
Pipeline	—	—	—	—	S	S	S
Multiple modes	27.3	11.0	49.0	12.1	S	S	19.2
Parcel, U.S. Postal Service or courier	27.3	11.0	49.0	12.1	S	S	19.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 41, WASTE AND SCRAP							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	S
Truck	S	S	S	S	48.0	18.5	S
For-hire truck	S	S	S	S	S	S	29.5
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	S	S	S	S	S	S	S
Shallow draft	S	S	S	S	S	S	31.6
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
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	21.2	—	27.3	—	35.7	—	38.5
Single modes	25.8	6.1	29.3	4.3	38.7	4.2	46.3
Truck	25.8	6.1	29.3	4.3	38.7	4.2	46.8
For-hire truck	31.5	3.2	34.9	1.7	S	S	33.6
Private truck	27.6	6.6	30.1	4.1	41.8	8.3	29.7
Rail	—	—	—	—	—	—	—
Water	S	S	S	S	S	S	35.1
Shallow draft	S	S	S	S	S	S	31.6
Great Lakes	—	—	—	—	—	—	—
Deep draft	S	S	S	S	S	S	31.6
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	47.3	.6	S	S	20.0
Parcel, U.S. Postal Service or courier	S	S	47.3	.6	S	S	20.0
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	
COMMODITY UNKNOWN							
Total	14.5	—	23.4	—	S	S	S
Single modes	14.3	3.2	24.6	4.0	S	S	S
Truck	25.0	14.6	25.7	16.4	S	S	S
For-hire truck	S	S	38.8	8.8	29.2	14.8	29.4
Private truck	34.8	14.0	38.5	14.0	49.5	13.2	S
Rail	47.2	12.0	S	S	S	S	28.0
Water	S	S	S	S	S	S	31.6
Shallow draft	S	S	S	S	S	S	31.6
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	S	S	S	S	S	S	31.6
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.5

— 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.

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	3.9	—	6.5	—	17.8	—
NEW ENGLAND STATES						
Connecticut	30.6	—	42.4	—	41.8	—
Maine	39.1	—	S	S	S	S
Massachusetts	18.5	—	25.4	—	24.8	—
New Hampshire	33.4	—	48.2	—	49.0	—
Rhode Island	S	S	48.2	—	48.7	—
Vermont	S	S	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	24.9	.3	S	S	S	S
New York	19.0	.2	43.1	—	S	S
Pennsylvania	17.1	.1	17.5	—	19.7	.3
EAST NORTH CENTRAL STATES						
Illinois	22.2	.6	27.4	.5	24.8	2.1
Indiana	24.1	.1	26.4	—	24.9	.1
Michigan	36.1	.5	23.7	—	22.3	.3
Ohio	20.5	.3	37.2	.4	44.3	2.5
Wisconsin	24.0	.1	39.4	.1	40.8	.6
WEST NORTH CENTRAL STATES						
Iowa	36.4	.3	30.3	—	32.3	.4
Kansas	24.3	—	24.0	—	25.5	.1
Minnesota	39.9	.2	47.6	—	S	S
Missouri	20.5	.3	23.8	.1	27.4	.5
Nebraska	19.6	—	46.1	—	41.8	.2
North Dakota	S	S	S	S	S	S
South Dakota	S	S	S	S	S	S
SOUTH ATLANTIC STATES						
Delaware	46.9	—	40.6	—	40.5	—
District of Columbia	29.2	—	S	—	S	S
Florida	22.0	1.0	31.1	1.3	31.9	4.0
Georgia	14.7	.2	11.8	—	10.5	.3
Maryland	20.1	—	S	S	S	S
North Carolina	8.2	—	14.9	—	14.2	.1
South Carolina	15.0	—	15.1	—	15.8	.1
Virginia	25.0	.1	S	S	S	S
West Virginia	21.0	—	36.0	—	39.3	.3
EAST SOUTH CENTRAL STATES						
Alabama	35.7	.8	23.0	.2	28.4	.5
Kentucky	26.7	.4	33.0	.6	31.3	1.9
Mississippi	17.3	.6	25.4	.9	19.5	.4
Tennessee	16.7	.2	37.2	.3	41.7	1.0
WEST SOUTH CENTRAL STATES						
Arkansas	19.1	.2	23.4	.2	22.6	.4
Louisiana	4.4	1.8	8.7	3.0	13.2	1.8
Oklahoma	14.1	—	29.7	.1	39.1	.4
Texas	5.2	.6	12.3	1.1	14.0	1.7
MOUNTAIN STATES						
Arizona	22.3	—	16.6	—	15.5	.2
Colorado	20.9	—	13.6	—	14.2	—
Idaho	S	S	S	S	S	S
Montana	S	S	S	S	S	S
Nevada	34.3	—	38.2	—	39.7	—
New Mexico	34.8	—	31.8	—	30.7	—
Utah	46.3	—	S	S	S	S
Wyoming	48.4	—	48.5	—	48.6	—
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	13.3	.3	11.7	—	23.2	1.8
Hawaii	S	S	S	S	S	S
Oregon	25.1	—	24.1	—	24.0	.1
Washington	29.8	.1	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	5.5	—	8.3	—	22.7	—
NEW ENGLAND STATES						
Connecticut	27.0	—	35.3	—	35.1	—
Maine	S	S	S	S	S	S
Massachusetts	22.6	—	39.3	—	39.4	—
New Hampshire	28.7	—	44.9	—	45.1	—
Rhode Island	S	S	S	S	S	S
Vermont	38.8	—	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	45.8	.4	S	S	S	S
New York	30.2	.3	S	S	S	S
Pennsylvania	22.9	.1	S	S	S	S
EAST NORTH CENTRAL STATES						
Illinois	7.7	.2	7.1	.8	7.1	3.2
Indiana	18.1	.2	12.7	.1	14.1	.5
Michigan	24.2	.3	15.1	—	14.5	—
Ohio	S	S	35.7	.3	36.7	1.1
Wisconsin	38.9	.4	S	S	S	S
WEST NORTH CENTRAL STATES						
Iowa	23.2	.4	16.0	.5	15.8	2.5
Kansas	26.6	.3	45.2	.3	49.0	1.3
Minnesota	13.8	.2	20.8	1.0	21.2	3.4
Missouri	20.5	.3	34.6	.6	36.9	1.6
Nebraska	24.7	—	40.1	—	41.1	—
North Dakota	28.8	—	S	S	S	S
South Dakota	46.0	—	S	S	S	S
SOUTH ATLANTIC STATES						
Delaware	39.9	—	S	S	S	S
District of Columbia	S	S	S	S	49.2	—
Florida	9.4	.1	33.6	.1	33.8	.3
Georgia	49.6	1.4	30.1	—	31.7	.1
Maryland	S	S	38.1	—	38.0	—
North Carolina	17.8	.2	29.8	—	30.2	—
South Carolina	35.8	.2	26.0	—	29.9	—
Virginia	42.3	.1	S	S	S	S
West Virginia	23.5	—	21.3	—	22.2	—
EAST SOUTH CENTRAL STATES						
Alabama	21.2	.4	33.0	.5	47.8	.7
Kentucky	29.1	.3	31.3	.3	33.5	.5
Mississippi	14.1	.6	25.5	.4	28.0	.3
Tennessee	15.0	.3	28.9	.2	29.9	.3
WEST SOUTH CENTRAL STATES						
Arkansas	16.9	.2	35.7	.7	23.5	.3
Louisiana	4.4	3.2	8.7	3.2	13.2	1.2
Oklahoma	16.0	.1	20.8	—	20.8	.2
Texas	17.2	1.2	29.5	1.3	27.0	.8
MOUNTAIN STATES						
Arizona	44.3	—	39.8	—	40.5	—
Colorado	32.5	—	S	S	S	S
Idaho	29.1	—	27.8	—	30.7	—
Montana	28.5	—	S	S	S	S
Nevada	S	S	38.0	—	39.3	—
New Mexico	44.8	—	40.8	—	41.9	—
Utah	45.6	—	S	S	S	S
Wyoming	S	S	S	S	S	S
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	41.2	.7	S	S	S	S
Hawaii	S	.6	S	S	S	S
Oregon	26.9	.9	S	S	S	S
Washington	S	S	42.2	—	44.1	—
			44.3	—	43.8	—

— 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.

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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	3.9	4.8	7.2	6.5	6.2	11.3	17.8	10.9	23.8	11.8	17.0	21.7
Single modes	3.8	4.2	7.0	6.7	5.0	11.6	19.1	11.9	26.1	15.2	34.6	29.9
Truck	5.8	5.6	8.5	17.2	13.7	23.7	S	16.3	S	18.2	40.6	44.5
Rail	13.8	14.3	18.3	10.8	24.2	19.8	12.2	20.3	20.1	5.2	5.0	8.0
Water	10.1	10.6	30.9	15.4	13.4	45.4	10.3	23.0	31.0	S	18.6	S
Air (includes truck and air)	45.5	35.2	16.5	25.8	35.7	27.4	23.4	31.5	34.3	6.6	3.3	8.6
Pipeline	17.7	10.6	26.9	16.8	12.7	25.2	S	S	S	S	S	S
Multiple modes	13.0	9.8	19.9	30.8	41.5	32.1	41.4	29.5	59.9	8.2	6.0	10.6
Parcel, U.S. Postal Service or courier ..	15.2	10.8	27.7	16.1	11.8	39.7	23.2	14.3	60.2	8.6	6.0	10.9
Truck and rail	37.7	23.1	27.8	44.6	27.5	31.4	35.2	20.8	21.0	18.4	6.5	16.9
All other multiple modes	43.8	S	S	36.5	46.7	35.5	45.5	35.9	75.1	39.7	30.2	75.7
Other and unknown modes ...	41.9	31.1	22.1	S	36.7	S	S	29.0	S	27.9	24.7	63.2

- 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	3.9	4.8	7.2	6.5	6.2	11.3	17.8	10.9	23.8	11.8	17.0	21.7
01-05	Agricultural products and fish	21.0	20.6	43.5	22.2	23.8	74.9	31.3	14.9	82.7	S	S	S
06-09	Grains, alcohol, and tobacco products	7.6	11.1	11.9	16.5	19.8	24.0	30.3	25.9	48.7	37.2	42.8	41.7
10-14	Stones, nonmetallic minerals, and metallic ores	34.7	25.8	40.0	35.2	32.9	44.4	33.4	S	S	45.6	39.8	94.2
15-19	Coal and petroleum products	8.6	5.5	14.0	8.7	8.9	16.7	9.3	21.4	34.6	S	S	S
20-24	Basic chemicals, chemical, and pharmaceutical products	13.2	7.2	17.0	21.7	12.6	24.8	40.8	9.5	53.3	18.4	13.1	39.6
25-30	Logs, wood products, and textile and leather	14.3	20.3	18.7	12.1	38.0	19.9	6.5	37.7	23.0	32.9	10.9	11.5
31-34	Base metal and machinery ..	7.8	8.0	11.6	S	42.1	S	13.2	34.2	22.8	19.8	22.4	23.7
35-38	Electronic, motorized vehicles, and precision instruments	31.0	24.1	44.2	35.6	17.6	56.2	S	32.4	S	47.2	28.9	67.6
39-43	Furniture, mixed freight and misc. manufactured prod. ..	12.8	14.6	34.9	24.8	24.2	35.0	41.8	17.7	45.0	21.8	23.9	35.0
--	Commodity unknown	14.5	46.1	15.6	23.4	S	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.

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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.

