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Transportation

2002 Commodity Flow Survey



U.S. Department of Transportation
BUREAU OF TRANSPORTATION STATISTICS

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



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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in "2" and "7".

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

- Policymaking agencies of the federal government use the data to monitor economic activity and to assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

BASIS OF REPORTING

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

AVAILABILITY OF ADDITIONAL DATA

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

HISTORICAL INFORMATION

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

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some service trades in 1933.

Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated, providing comparable census data across economic sectors and using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census report forms.

The range of industries covered in the economic censuses expanded between 1967 and 2002. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity. New for 2002 is coverage of four industries classified in the Agriculture, Forestry, and Fishing sector under the SIC system: landscape agricultural services, landscaping services, veterinary services, and pet care services.

Printed statistical reports from the 1997 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. CD-ROMs issued from the 1987, 1992, and 1997 Economic Censuses contain databases including all or nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the Guide to the 2002 Economic Census at www.census.gov/epcd/ec02/guide.html. More information on the methodology, procedures, and history of the censuses will be published in the History of the 2002 Economic Census at www.census.gov/econ/www/history.html.

2002 Commodity Flow Survey

GENERAL

The 2002 Commodity Flow Survey (CFS) is undertaken through a partnership between the U.S. Census Bureau, U.S. Department of Commerce, and the Bureau of Transportation Statistics (BTS), U.S. Department of Transportation. This survey produces data on the movement of goods in the United States. It provides information on commodities shipped, their value, weight, and mode of transportation, as well as the origin and destination of shipments of manufacturing, mining, wholesale, and select retail establishments. The data from the CFS are used by public policy analysts and for transportation planning and decision making to assess the demand for transportation facilities and services, energy use, and safety risk and environmental concerns. The CFS was last conducted in 1997.

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

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

INDUSTRY COVERAGE

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

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

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

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

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

SHIPMENT COVERAGE

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

The "Industry Coverage" section of the text lists the NAICS groups covered by the CFS. Other industry areas that are not covered, but may have significant shipping activity, include agriculture and government. For agriculture, specifically, this means that the CFS does not cover shipments of agricultural products from the farm site to the processing centers or terminal elevators (most likely short-distance local movements), but does cover the shipments of these products from the initial processing centers or terminal elevators onward.

MILEAGE CALCULATIONS

To estimate the distance traveled by each freight shipment sampled for the 2002 Commodity Flow Survey, the BTS Mileage Calculation Team used routing algorithms and an integrated, intermodal transportation network developed and updated expressly for this purpose by the Oak Ridge

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

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

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

The ORNL multimodal network database is composed of mode-specific subnetworks representing each of the major transportation modes, such as highway, railway, waterway, and airway (pipeline network was not available due to security reasons). The links of these networks represent line-haul transportation facilities. Network nodes represent intersections and interchanges, along with the access points to the transportation network. To simulate local access, test links are created from each five-digit ZIP Code centroid to nearby nodes on the network. For the truck network, local access is assumed to exist everywhere. For the other modes this is not true. Before any test links are created for these modes, a search procedure is used to determine if and where such networks are most likely to provide access to the ZIP Code. For shipments involving more than one mode, such as truck-rail or rail-water shipments, intermodal transfer links are added to the network database to connect the individual modal networks together for routing purposes. An intermodal terminals database and a number of terminal transfer models were developed at ORNL to identify likely transfer points for different classes of freight. A measure of link impedance was calculated for each access, line-haul, and intermodal transfer link traversed by a shipment. These impedances were mode specific and are based on various link characteristics. For example, the set of links characterizing the highway network included speed impacting factors, such as the presence of a divided or undivided roadway, the degree of access control, the rural or urban setting, the number of lanes, the degree of urban congestion, and the length of the link. Link impedance measures were also assigned to the local access links. Intermodal transfer link impedances are estimated in terms of the time it takes to move goods through a transfer facility. In the case of rail and air freight, intercarrier transfer penalties were also considered to obtain proper route selections. A shortest path algorithm is used to find the minimum impedance path between a shipment's origin ZIP Code centroid and destination ZIP Code centroid. The cumulative length of

the local access plus line-haul links on this path provides the estimated distances used in CFS mileage computations. When rail and air freight were involved, these shipment distances were often averaged over more than one path between an origin-destination pair.

Mileage Data for Pipeline Shipments

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

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

EXPLANATION OF TERMS

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

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

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

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

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

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

For the 1997 and 2002 CFS, we made numerous efforts throughout our data collection and editing to produce consistent results from establishments shipping SCTG 29, Printed Products. As a result, we have included printed products in the average miles per shipment estimates for 1997 and 2002.

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

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

Mode of transportation. The type of transportation used for moving the shipment to its domestic destination. For exports, the domestic destination was the port of exit.

Mode Definitions

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

1. **Parcel delivery/courier/U.S. Postal Service.** Delivery services that carry letters, parcels, packages, and other small shipments that typically weigh less than 100 pounds. Includes bus parcel delivery service.
2. **Private truck.** Trucks operated by a temporary or permanent employee of an establishment or the buyer/receiver of the shipment.
3. **For-hire truck.** Trucks that carry freight for a fee collected from the shipper, recipient of the shipment, or an arranger of the transportation.
4. **Railroad.** Any common carrier or private railroad.
5. **Shallow draft vessels.** Barges, ships, or ferries operating primarily on rivers and canals; in harbors, the Great Lakes, the Saint Lawrence Seaway; the Intra-coastal Waterway, the Inside Passage to Alaska, major bays and inlets; or in the ocean close to the shoreline.
6. **Deep draft vessel.** Barges, ships, or ferries operating primarily in the open ocean. Shipping on the Great Lakes and the Saint Lawrence Seaway is classified with shallow draft vessels.
7. **Pipeline.** Movements of oil, petroleum, gas, slurry, etc., through pipelines that extend to other establishments or locations beyond the shipper’s establishment. Aqueducts for the movement of water are not included.
8. **Air.** Commercial or private aircraft, and all air service for shipments that typically weigh more than 100 pounds. Includes air freight and air express.
9. **Other mode.** Any mode not listed above.
10. **Unknown.** The shipment was not carried by a parcel delivery/courier/U.S. Postal Service, and the respondent could not determine what mode of transportation was used.

In the tables, we have used additional terms for mode, which we define as follows:

1. **Air (includes truck and air).** Shipments that used air or a combination of truck and air.
2. **Single modes.** Shipments using only one of the above-listed modes, except parcel or other and unknown.
3. **Multiple modes.** Shipments for which two or more of the following modes of transportation were used:
 - Private truck
 - For-hire truck
 - Rail
 - Shallow draft vessel
 - Deep draft vessel
 - Pipeline

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

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

4. **Other multiple modes.** Shipments using any other mode combinations not specifically listed in the tables.
5. **Other and unknown modes.** Shipments for which modes were not reported, or were reported by the respondent as "Other" or "Unknown."
6. **Truck.** Shipments using for-hire truck only, private truck only, or a combination of for-hire truck and private truck.
7. **Water.** Shipments using shallow draft vessel only, deep draft vessel only, or Great Lakes vessel only. Combinations of these modes, such as shallow draft vessel and Great Lakes vessel are included as "Other multiple modes." (Note: By definition, "shallow draft," "Great Lakes," and "deep draft" are mutually exclusive.)
8. **Great Lakes.** In the tables in this publication, "Great Lakes" appears as a single mode. ORNL's transportation network and mileage calculation system allowed for separate mileage calculations for Great Lakes between the origin and destination ZIP Codes.

Other Definitions and Terms

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

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

Ton-miles. The shipment weight multiplied by the mileage traveled by the shipment. The respondents reported shipment weight in pounds. Aggregated pound-miles were converted to ton-miles. Mileage was calculated as the distance between the shipment origin and destination ZIP Codes. For shipments by truck, rail, or shallow draft vessels, the mileage excludes international segments. For example, mileages from Alaska to the continental United States exclude any mileages through Canada (see the "Mileage Calculations" section for more details). For trucks making multiple stops, the ton-miles are calculated for each delivery, and each drop-off point is treated as a final destination. Ton-miles estimates are displayed in millions.

Tons shipped. The total weight of the entire shipment. Respondents reported the weight in pounds. Aggregated pounds were converted to short-tons (2,000 pounds). For freight shipped to distribution centers for subsequent reshipment, the tonnage is counted each time the goods are transported.

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

ABBREVIATIONS AND SYMBOLS

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

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

OTHER TRANSPORTATION DATA

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

Vehicle Inventory and Use Survey covers state and U.S. level statistics on the physical and operational characteristics of the nation's truck, van, minivan, and sport utility vehicle population. Some of the types of data collected include number of vehicles, major use, body type, annual miles, model year, vehicle size, fuel type, operator classification, engine size, range of operation, weeks operated, products carried, and hazardous materials carried. This survey shows comparative statistics reflecting percent changes in number of vehicles between 2002 and 1997 for most characteristics.

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

For more information on any Census Bureau product, including a description of electronic and printed reports being issued, see the Web site or call Customer Services at 301-763-INFO (4636).

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

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

Mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Total	12 106	100.0	401 092	100.0	421 230	100.0	589
Single modes	10 005	82.6	364 696	90.9	381 070	90.5	165
Truck ²	5 675	46.9	30 721	7.7	5 740	1.4	110
For-hire truck	2 181	18.0	14 276	3.6	4 173	1.0	403
Private truck	3 492	28.8	16 419	4.1	1 561	.4	52
Rail	3 649	30.1	329 697	82.2	374 875	89.0	1 107
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	19	.2	S	S	S	S	2 437
Pipeline ³	S	S	4 278	1.1	S	S	S
Multiple modes	1 734	14.3	S	S	S	S	962
Parcel, U.S. Postal Service or courier	S	S	23	—	21	—	961
Truck and rail	45	.4	S	S	S	S	1 605
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	1 767
Other multiple modes	S	S	S	S	S	S	41
Other and unknown modes	367	3.0	S	S	265	—	S

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

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

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

³Estimates for pipeline exclude shipments of crude petroleum.

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

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

Table 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	82.6	84.6	90.9	85.4	90.5	87.0
Truck ²	46.9	45.9	7.7	7.7	1.4	1.6
For-hire truck	18.0	18.5	3.6	3.4	1.0	1.1
Private truck	28.8	27.3	4.1	4.2	.4	.5
Rail	30.1	36.0	82.2	77.4	89.0	85.4
Water	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Air (includes truck and air) .....	.2	S	S	S	S	S
Pipeline ³	S	S	1.1	S	S	S
Multiple modes	14.3	11.4	S	9.0	S	13.0
Parcel, U.S. Postal Service or courier	S	9.1	—	S	—	—
Truck and rail .....	.4	.8	S	S	S	S
Truck and water	—	—	—	—	—	—
Rail and water	S	1.5	S	8.9	S	12.8
Other multiple modes	S	S	S	S	S	S
Other and unknown modes	3.0	3.9	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.

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

³Estimates for pipeline exclude shipments of crude petroleum.

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

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

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

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

Mode of transportation ¹	Ton-miles ²		Average miles per shipment
	2002 (millions)	Percent	
Total	421 230	100.0	589
Truck	5 740	1.4	110
Rail	374 875	89.0	1 107
Shallow draft	—	—	—
Great Lakes	—	—	—
Deep draft	—	—	—
Air	S	S	2 437
Parcel, U.S. Postal Service or courier	452	.1	91
Pipeline ³	S	S	S
Other and unknown modes	265	—	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.

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

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

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

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

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

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

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

Mode of transportation and distance shipped ¹ (based on Great Circle Distance)	Value		Tons		Ton-miles ²	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Total	12 106	100.0	401 092	100.0	421 230	100.0
Less than 50 miles	2 629	21.7	28 891	7.2	804	.2
50 to 99 miles	1 370	11.3	15 086	3.8	1 973	.5
100 to 249 miles	1 835	15.2	16 208	4.0	3 420	.8
250 to 499 miles	960	7.9	27 601	6.9	15 352	3.6
500 to 749 miles	1 425	11.8	73 347	18.3	66 632	15.8
750 to 999 miles	1 710	14.1	114 797	28.6	137 608	32.7
1,000 to 1,499 miles	1 872	15.5	123 635	30.8	192 289	45.6
1,500 to 1,999 miles	296	2.4	1 527	.4	3 152	.7
2,000 miles or more	11	—	S	S	—	—
Single modes	10 005	100.0	364 696	100.0	381 070	100.0
Less than 50 miles	2 271	22.7	15 844	4.3	523	.1
50 to 99 miles	1 303	13.0	14 331	3.9	1 886	.5
100 to 249 miles	1 656	16.6	15 935	4.4	3 353	.9
250 to 499 miles	872	8.7	27 598	7.6	15 351	4.0
500 to 749 miles	1 254	12.5	73 335	20.1	66 621	17.5
750 to 999 miles	1 397	14.0	114 774	31.5	137 582	36.1
1,000 to 1,499 miles	1 123	11.2	101 372	27.8	152 648	40.1
1,500 to 1,999 miles	129	1.3	1 506	.4	3 106	.8
2,000 miles or more	S	S	S	S	S	S
Truck³	5 675	100.0	30 721	100.0	5 740	100.0
Less than 50 miles	2 195	38.7	14 130	46.0	399	7.0
50 to 99 miles	825	14.5	4 619	15.0	407	7.1
100 to 249 miles	1 345	23.7	6 273	20.4	1 258	21.9
250 to 499 miles	492	8.7	3 236	10.5	1 256	21.9
500 to 749 miles	369	6.5	1 525	5.0	1 223	21.3
750 to 999 miles	219	3.9	S	S	S	S
1,000 to 1,499 miles	180	3.2	230	.7	329	5.7
1,500 to 1,999 miles	51	.9	99	.3	191	3.3
2,000 miles or more	S	S	S	S	S	S
For-hire truck	2 181	100.0	14 276	100.0	4 173	100.0
Less than 50 miles	286	13.1	3 474	24.3	S	S
50 to 99 miles	303	13.9	2 813	19.7	223	5.4
100 to 249 miles	536	24.6	3 662	25.6	774	18.6
250 to 499 miles	284	13.0	2 168	15.2	888	21.3
500 to 749 miles	346	15.9	1 255	8.8	1 031	24.7
750 to 999 miles	205	9.4	S	S	S	S
1,000 to 1,499 miles	170	7.8	212	1.5	301	7.2
1,500 to 1,999 miles	50	2.3	95	.7	183	4.4
2,000 miles or more	S	S	S	S	S	S
Private truck	3 492	100.0	16 419	100.0	1 561	100.0
Less than 50 miles	1 908	54.7	10 656	64.9	291	18.7
50 to 99 miles	522	15.0	1 806	11.0	184	11.8
100 to 249 miles	809	23.2	2 590	15.8	480	30.7
250 to 499 miles	206	5.9	1 064	6.5	367	23.5
500 to 749 miles	23	.7	S	S	S	S
750 to 999 miles	14	.4	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	—	—	—	—	—	—
Rail	3 649	100.0	329 697	100.0	374 875	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	138	3.8	S	S	S	S
250 to 499 miles	378	10.3	24 362	7.4	14 095	3.8
500 to 749 miles	882	24.2	71 810	21.8	65 398	17.4
750 to 999 miles	1 175	32.2	114 164	34.6	136 905	36.5
1,000 to 1,499 miles	940	25.8	101 142	30.7	152 319	40.6
1,500 to 1,999 miles	71	2.0	1 407	.4	2 915	.8
2,000 miles or more	—	—	—	—	—	—
Water	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

See footnotes at end of table.

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

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

Mode of transportation and distance shipped ¹ (based on Great Circle Distance)	Value		Tons		Ton-miles ²	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Single modes—Con.						
Great Lakes	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Air (includes truck and air)	19	100.0	\$	\$	\$	\$
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	\$	\$	\$	\$	\$	\$
100 to 249 miles	\$	\$	\$	\$	\$	\$
250 to 499 miles	\$	\$	\$	\$	\$	\$
500 to 749 miles	\$	\$	\$	\$	\$	\$
750 to 999 miles	\$	\$	\$	\$	\$	\$
1,000 to 1,499 miles	\$	\$	\$	\$	\$	\$
1,500 to 1,999 miles	\$	\$	\$	\$	\$	\$
2,000 miles or more	\$	\$	\$	\$	\$	\$
Pipeline⁴	\$	\$	4 278	100.0	\$	\$
Less than 50 miles	\$	\$	\$	\$	\$	\$
50 to 99 miles	\$	\$	2 534	59.2	\$	\$
100 to 249 miles	\$	\$	\$	\$	\$	\$
250 to 499 miles	—	—	—	—	\$	\$
500 to 749 miles	—	—	—	—	\$	\$
750 to 999 miles	—	—	—	—	\$	\$
1,000 to 1,499 miles	—	—	—	—	\$	\$
1,500 to 1,999 miles	—	—	—	—	\$	\$
2,000 miles or more	—	—	—	—	\$	\$
Multiple modes	1 734	100.0	\$	\$	\$	\$
Less than 50 miles	\$	\$	\$	\$	\$	\$
50 to 99 miles	57	3.3	\$	\$	\$	\$
100 to 249 miles	125	7.2	4	—	1	—
250 to 499 miles	81	4.7	2	—	1	—
500 to 749 miles	168	9.7	\$	\$	\$	\$
750 to 999 miles	\$	\$	23	—	26	—
1,000 to 1,499 miles	\$	\$	\$	\$	\$	\$
1,500 to 1,999 miles	\$	\$	21	—	\$	\$
2,000 miles or more	\$	\$	\$	\$	\$	\$
Parcel, U.S. Postal Service or courier	\$	\$	23	100.0	21	100.0
Less than 50 miles	17	1.2	1	3.1	—	.1
50 to 99 miles	53	3.6	1	5.8	—	.6
100 to 249 miles	125	8.5	4	16.0	1	3.6
250 to 499 miles	81	5.5	2	9.1	1	4.7
500 to 749 miles	166	11.3	2	9.1	2	8.0
750 to 999 miles	\$	\$	5	23.9	6	28.4
1,000 to 1,499 miles	\$	\$	\$	\$	7	32.2
1,500 to 1,999 miles	\$	\$	2	10.7	5	21.5
2,000 miles or more	\$	\$	\$	\$	\$	\$
Truck and rail	45	100.0	\$	\$	\$	\$
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	\$	\$	\$	\$	\$	\$
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	\$	\$	\$	\$	\$	\$
750 to 999 miles	\$	\$	\$	\$	\$	\$
1,000 to 1,499 miles	22	48.4	33	4.0	56	26.9
1,500 to 1,999 miles	\$	\$	\$	\$	\$	\$
2,000 miles or more	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

See footnotes at end of table.

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

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

Mode of transportation and distance shipped ¹ (based on Great Circle Distance)	Value		Tons		Ton-miles ²	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Multiple modes—Con.						
Rail and water	S	S	S	S	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other and unknown modes	367	100.0	S	S	265	100.0
Less than 50 miles	284	77.3	S	S	184	69.2
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	S	S	S	S	S	S
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	1	.4	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 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 4. Shipment Characteristics by Mode of Transportation and Shipment Weight for State of Origin: 2002

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

Mode of transportation and shipment weight	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Total	12 106	100.0	401 092	100.0	421 230	100.0	589
Less than 50 lb	S	S	28	—	18	—	725
50 to 99 lb	142	1.2	13	—	3	—	245
100 to 499 lb	328	2.7	64	—	7	—	113
500 to 749 lb	128	1.1	32	—	3	—	88
750 to 999 lb	52	.4	26	—	2	—	84
1,000 to 9,999 lb	1 005	8.3	875	.2	83	—	87
10,000 to 49,999 lb	2 256	18.6	9 226	2.3	2 542	.6	218
50,000 to 99,999 lb	1 683	13.9	12 113	3.0	2 341	.6	193
100,000 lb or more	4 962	41.0	378 715	94.4	416 231	98.8	991
Single modes	10 005	100.0	364 696	100.0	381 070	100.0	165
Less than 50 lb	145	1.4	7	—	1	—	102
50 to 99 lb	59	.6	7	—	1	—	89
100 to 499 lb	256	2.6	56	—	5	—	92
500 to 749 lb	96	1.0	28	—	2	—	S
750 to 999 lb	50	.5	26	—	2	—	82
1,000 to 9,999 lb	954	9.5	821	.2	81	—	88
10,000 to 49,999 lb	2 157	21.6	9 115	2.5	2 418	.6	211
50,000 to 99,999 lb	1 677	16.8	12 017	3.3	2 335	.6	193
100,000 lb or more	4 612	46.1	342 620	93.9	376 225	98.7	1 007
Truck²	5 675	100.0	30 721	100.0	5 740	100.0	110
Less than 50 lb	137	2.4	7	—	1	—	69
50 to 99 lb	56	1.0	7	—	1	—	75
100 to 499 lb	251	4.4	56	.2	5	—	88
500 to 749 lb	95	1.7	28	—	2	—	S
750 to 999 lb	50	.9	26	—	2	—	82
1,000 to 9,999 lb	950	16.7	818	2.7	77	1.3	82
10,000 to 49,999 lb	2 019	35.6	9 012	29.3	2 278	39.7	200
50,000 to 99,999 lb	1 653	29.1	11 867	38.6	2 267	39.5	190
100,000 lb or more	463	8.2	8 900	29.0	1 107	19.3	347
For-hire truck	2 181	100.0	14 276	100.0	4 173	100.0	403
Less than 50 lb	16	.7	—	—	—	—	772
50 to 99 lb	8	.4	—	—	—	—	341
100 to 499 lb	63	2.9	6	—	2	—	395
500 to 749 lb	46	2.1	3	—	2	—	473
750 to 999 lb	17	.8	3	—	1	—	438
1,000 to 9,999 lb	246	11.3	99	.7	34	.8	360
10,000 to 49,999 lb	908	41.6	3 917	27.4	1 989	47.7	463
50,000 to 99,999 lb	714	32.7	6 343	44.4	1 410	33.8	223
100,000 lb or more	S	S	3 904	27.3	735	17.6	590
Private truck	3 492	100.0	16 419	100.0	1 561	100.0	52
Less than 50 lb	122	3.5	7	—	—	—	38
50 to 99 lb	49	1.4	6	—	—	—	56
100 to 499 lb	188	5.4	50	.3	3	.2	52
500 to 749 lb	49	1.4	24	.1	1	—	35
750 to 999 lb	33	.9	23	.1	1	—	39
1,000 to 9,999 lb	702	20.1	720	4.4	44	2.8	52
10,000 to 49,999 lb	1 110	31.8	5 094	31.0	289	18.5	52
50,000 to 99,999 lb	939	26.9	5 499	33.5	851	54.5	153
100,000 lb or more	300	8.6	4 995	30.4	372	23.8	212
Rail	3 649	100.0	329 697	100.0	374 875	100.0	1 107
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	361
10,000 to 49,999 lb	138	3.8	102	—	140	—	1 294
50,000 to 99,999 lb	22	.6	146	—	68	—	487
100,000 lb or more	3 489	95.6	329 447	99.9	374 667	99.9	1 122
Water	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnotes at end of table.

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

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

Mode of transportation and shipment weight	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Single modes—Con.							
Great Lakes	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Air (includes truck and air)	19	100.0	\$	\$	\$	\$	2 437
Less than 50 lb	\$	\$	—	5.3	—	4.8	2 500
50 to 99 lb	\$	\$	—	4.3	\$	\$	1 925
100 to 499 lb	\$	\$	\$	\$	\$	\$	1 779
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	2 801
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Pipeline³	\$	\$	4 278	100.0	\$	\$	\$
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	\$	\$	4 274	99.9	\$	\$	\$
Multiple modes	1 734	100.0	\$	\$	\$	\$	962
Less than 50 lb	\$	\$	18	—	17	—	965
50 to 99 lb	70	4.0	3	—	2	—	735
100 to 499 lb	49	2.8	2	—	1	—	772
500 to 749 lb	\$	\$	\$	\$	\$	\$	1 162
750 to 999 lb	\$	\$	\$	\$	\$	\$	1 165
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	1 780
10,000 to 49,999 lb	41	2.3	74	.3	121	.3	1 624
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	\$	\$	\$	\$	\$	\$	1 624
Parcel, U.S. Postal Service or courier	\$	\$	23	100.0	21	100.0	961
Less than 50 lb	\$	\$	18	77.2	17	81.0	965
50 to 99 lb	70	4.7	3	14.2	2	11.6	735
100 to 499 lb	49	3.3	2	7.8	1	6.4	772
500 to 749 lb	\$	\$	\$	\$	\$	\$	1 162
750 to 999 lb	\$	\$	\$	\$	\$	\$	1 165
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	1 780
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Truck and rail	45	100.0	\$	\$	\$	\$	1 605
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	41	90.5	\$	\$	121	58.4	1 624
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	\$	\$	\$	\$	\$	\$	117
Truck and water	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnotes at end of table.

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

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

Mode of transportation and shipment weight	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
Multiple modes—Con.							
Rail and water	S	S	S	S	S	S	1 767
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	1 767
Other multiple modes	S	S	S	S	S	S	41
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	41
Other and unknown modes	367	100.0	S	S	265	100.0	S
Less than 50 lb	52	14.0	3	—	S	S	S
50 to 99 lb	S	S	3	—	S	S	S
100 to 499 lb	23	6.3	6	—	S	S	S
500 to 749 lb	S	S	4	—	S	S	46
750 to 999 lb	S	S	S	S	S	S	24
1,000 to 9,999 lb	S	S	S	S	3	1.0	S
10,000 to 49,999 lb	S	S	S	S	S	S	S
50,000 to 99,999 lb	6	1.7	S	S	S	S	S
100,000 lb or more	130	35.3	S	S	254	95.6	S

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

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

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

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

³Estimates for pipeline exclude shipments of crude petroleum.

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

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

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

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

SCTG code	Commodity description	Value		Tons		Ton-miles ¹		Average miles per shipment
		2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
	Total²	12 106	100.0	401 092	100.0	421 230	100.0	589
01	Live animals and live fish	—	—	—	—	—	—	—
02	Cereal grains	S	S	S	S	S	S	219
03	Other agricultural products	S	S	S	S	S	S	1 176
04	Animal feed and products of animal origin, n.e.c.	S	S	S	S	34	—	S
05	Meat, fish, seafood, and their preparations	S	S	S	S	S	S	S
06	Milled grain products and preparations, and bakery products	S	S	S	S	S	S	161
07	Other prepared foodstuffs and fats and oils	268	2.2	455	.1	170	—	S
08	Alcoholic beverages	141	1.2	S	S	S	S	138
09	Tobacco products	S	S	S	S	S	S	153
10	Monumental or building stone	S	S	S	S	S	S	8
11	Natural sands	4	—	305	—	S	S	45
12	Gravel and crushed stone	23	—	3 229	.8	S	S	81
13	Nonmetallic minerals n.e.c.	327	2.7	6 709	1.7	6 686	1.6	861
14	Metallic ores and concentrates	S	S	S	S	S	S	1 184
15	Coal	3 106	25.7	361 171	90.0	401 132	95.2	431
17	Gasoline and aviation turbine fuel	1 006	8.3	3 814	1.0	411	.1	59
18	Fuel oils	860	7.1	3 695	.9	384	—	53
19	Coal and petroleum products, n.e.c.	860	7.1	5 682	1.4	3 136	.7	177
20	Basic chemicals	452	3.7	5 931	1.5	5 201	1.2	299
21	Pharmaceutical products	S	S	S	S	S	S	231
22	Fertilizers	241	2.0	1 319	.3	728	.2	425
23	Chemical products and preparations, n.e.c.	759	6.3	4 145	1.0	1 424	.3	S
24	Plastics and rubber	167	1.4	S	S	S	S	304
25	Logs and other wood in the rough	S	S	S	S	S	S	S
26	Wood products	270	2.2	852	.2	559	.1	367
27	Pulp, newsprint, paper, and paperboard	S	S	S	S	S	S	S
28	Paper or paperboard articles	18	.1	4	—	—	—	S
29	Printed products	26	.2	S	S	S	S	194
30	Textiles, leather, and articles of textiles or leather	349	2.9	8	—	9	—	1 116
31	Nonmetallic mineral products	168	1.4	2 404	.6	323	—	86
32	Base metal in primary or semifinished forms and in finished basic shapes	28	.2	S	S	S	S	S
33	Articles of base metal	463	3.8	164	—	43	—	394
34	Machinery	748	6.2	123	—	14	—	139
35	Electronic and other electrical equipment and components and office equipment	S	S	23	—	S	S	989
36	Motorized and other vehicles (including parts)	231	1.9	31	—	5	—	178
37	Transportation equipment, n.e.c.	S	S	S	S	S	S	1 286
38	Precision instruments and apparatus	43	.4	S	S	S	S	713
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	S	S	S	S	S	68
40	Miscellaneous manufactured products	241	2.0	31	—	15	—	1 033
41	Waste and scrap	S	S	S	S	S	S	539
43	Mixed freight	142	1.2	S	S	S	S	S
--	Commodity unknown	19	.2	S	S	S	S	294

— 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	—	—	—	—	—	—
02	Cereal grains	S	S	S	S	S	S
03	Other agricultural products	S	S	S	S	S	S
04	Animal feed and products of animal origin, n.e.c. ....	.3	—	S	—	—	—
05	Meat, fish, seafood, and their preparations	S	—	S	—	S	—
06	Milled grain products and preparations, and bakery products	S	S	S	S	S	S
07	Other prepared foodstuffs and fats and oils	2.2	3.7	.1	—	—	.1
08	Alcoholic beverages	1.2	S	S	S	S	S
09	Tobacco products	S	S	S	—	S	S
10	Monumental or building stone	S	—	S	—	S	—
11	Natural sands	—	—	—	—	S	—
12	Gravel and crushed stone .....	.2	S	.8	—	S	—
13	Nonmetallic minerals n.e.c.	2.7	4.4	1.7	1.7	1.6	2.1
14	Metallic ores and concentrates	S	S	S	—	S	—
15	Coal	25.7	23.6	90.0	87.3	95.2	90.5
17	Gasoline and aviation turbine fuel	8.3	2.4	1.0	.3	.1	—
18	Fuel oils	7.1	5.6	.9	1.0	—	.2
19	Coal and petroleum products, n.e.c.	7.1	8.1	1.4	2.9	.7	6.6
20	Basic chemicals	3.7	13.0	1.5	4.2	1.2	4.5
21	Pharmaceutical products	S	S	S	S	S	S
22	Fertilizers	2.0	1.5	.3	.2	.2	.2
23	Chemical products and preparations, n.e.c.	6.3	1.1	1.0	—	.3	—
24	Plastics and rubber	1.4	S	S	—	S	—
25	Logs and other wood in the rough	S	S	S	—	S	—
26	Wood products	2.2	2.0	.2	.2	.1	.1
27	Pulp, newsprint, paper, and paperboard	S	S	S	S	S	S
28	Paper or paperboard articles .....	.1	S	—	—	—	—
29	Printed products .....	.2	S	S	—	S	—
30	Textiles, leather, and articles of textiles or leather	2.9	2.2	—	—	—	—
31	Nonmetallic mineral products	1.4	1.3	.6	.5	—	.2
32	Base metal in primary or semifinished forms and in finished basic shapes .....	.2	S	S	—	S	—
33	Articles of base metal	3.8	2.1	—	—	—	—
34	Machinery	6.2	S	—	—	—	—
35	Electronic and other electrical equipment and components and office equipment	S	S	—	—	S	—
36	Motorized and other vehicles (including parts)	1.9	S	—	—	—	—
37	Transportation equipment, n.e.c.	S	S	S	S	S	S
38	Precision instruments and apparatus .....	.4	S	S	—	S	—
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	.3	S	—	S	—
40	Miscellaneous manufactured products	2.0	3.2	—	—	—	—
41	Waste and scrap	S	S	S	—	S	—
43	Mixed freight	1.2	S	S	—	S	—
--	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.

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

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

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

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

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
ALL COMMODITIES							
Total²	12 106	100.0	401 092	100.0	421 230	100.0	589
Single modes	10 005	82.6	364 696	90.9	381 070	90.5	165
Truck ³	5 675	46.9	30 721	7.7	5 740	1.4	110
For-hire truck	2 181	18.0	14 276	3.6	4 173	1.0	403
Private truck	3 492	28.8	16 419	4.1	1 561	.4	52
Rail	3 649	30.1	329 697	82.2	374 875	89.0	1 107
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	19	.2	\$	\$	\$	\$	2 437
Pipeline ⁴	\$	\$	4 278	1.1	\$	\$	\$
Multiple modes	1 734	14.3	\$	\$	\$	\$	962
Parcel, U.S. Postal Service or courier	\$	\$	23	—	21	—	961
Truck and rail	45	.4	\$	\$	\$	\$	1 605
Truck and water	—	—	—	—	—	—	—
Rail and water	\$	\$	\$	\$	\$	\$	1 767
Other multiple modes	\$	\$	\$	\$	\$	\$	41
Other and unknown modes	367	3.0	\$	\$	265	—	\$
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	—	—	—	—	\$	\$	\$
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	\$	\$	\$	\$	\$	\$	219
Single modes	\$	\$	\$	\$	\$	\$	219
Truck ³	\$	\$	\$	\$	\$	\$	30
For-hire truck	\$	\$	\$	\$	\$	\$	115
Private truck	\$	\$	\$	\$	\$	\$	16
Rail	\$	\$	\$	\$	\$	\$	681
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

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	\$	\$	\$	\$	\$	\$	1 176
Single modes	\$	\$	\$	\$	\$	\$	1 176
Truck ³	\$	\$	\$	\$	\$	\$	636
For-hire truck	\$	\$	\$	\$	\$	\$	806
Private truck	\$	\$	\$	\$	\$	\$	34
Rail	\$	\$	\$	\$	\$	\$	1 765
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 04, ANIMAL FEED AND PRODUCTS OF ANIMAL ORIGIN, N.E.C.							
Total	\$	\$	\$	\$	34	100.0	\$
Single modes	\$	\$	\$	\$	34	100.0	\$
Truck ³	\$	\$	\$	\$	11	32.6	\$
For-hire truck	\$	\$	\$	\$	\$	\$	\$
Private truck	\$	\$	\$	\$	7	22.1	\$
Rail	\$	\$	\$	\$	\$	\$	1 304
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	21
SCTG 05, MEAT, FISH, SEAFOOD, AND THEIR PREPARATIONS							
Total	\$	\$	\$	\$	\$	\$	\$
Single modes	\$	\$	\$	\$	\$	\$	131
Truck ³	\$	\$	\$	\$	\$	\$	131
For-hire truck	—	—	—	—	—	—	—
Private truck	\$	\$	\$	\$	\$	\$	131
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	793
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	793
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	10

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	\$	\$	\$	\$	\$	\$	161
Single modes	\$	\$	\$	\$	\$	\$	161
Truck ³	\$	\$	\$	\$	\$	\$	161
For-hire truck	\$	\$	\$	\$	\$	\$	114
Private truck	\$	\$	\$	\$	\$	\$	173
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 07, OTHER PREPARED FOODSTUFFS AND FATS AND OILS							
Total	268	100.0	455	100.0	170	100.0	\$
Single modes	267	99.9	454	99.8	169	99.6	\$
Truck ³	243	90.7	407	89.5	111	65.3	\$
For-hire truck	138	51.4	249	54.8	95	56.0	366
Private truck	105	39.2	158	34.7	16	9.2	\$
Rail	25	9.2	47	10.2	58	34.3	1 256
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	1 667
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	1 667
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	\$	\$	\$	\$	\$	\$	963
SCTG 08, ALCOHOLIC BEVERAGES							
Total	141	100.0	\$	\$	\$	\$	138
Single modes	141	100.0	\$	\$	\$	\$	138
Truck ³	141	100.0	\$	\$	\$	\$	138
For-hire truck	69	49.3	16	18.4	4	45.1	260
Private truck	\$	\$	\$	\$	\$	\$	68
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-

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	\$	\$	\$	\$	\$	\$	153
Single modes	\$	\$	\$	\$	\$	\$	153
Truck ³	\$	\$	\$	\$	\$	\$	153
For-hire truck	\$	\$	\$	\$	\$	\$	153
Private truck	\$	\$	\$	\$	\$	\$	153
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 10, MONUMENTAL OR BUILDING STONE							
Total	\$	\$	\$	\$	\$	\$	8
Single modes	\$	\$	\$	\$	\$	\$	8
Truck ³	\$	\$	\$	\$	\$	\$	8
For-hire truck	\$	\$	\$	\$	\$	\$	8
Private truck	\$	\$	\$	\$	\$	\$	8
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 11, NATURAL SANDS							
Total	4	100.0	305	100.0	\$	\$	45
Single modes	4	99.5	299	98.3	\$	\$	45
Truck ³	4	99.5	299	98.3	\$	\$	45
For-hire truck	\$	\$	\$	\$	\$	\$	33
Private truck	2	67.9	263	86.3	\$	\$	46
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	\$	\$	\$
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	\$	\$	\$	\$	\$	\$	16

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	23	100.0	3 229	100.0	S	S	81
Single modes	21	92.1	2 944	91.2	S	S	83
Truck ³	21	90.1	2 783	86.2	S	S	78
For-hire truck	S	S	S	S	S	S	82
Private truck	13	56.6	1 869	57.9	S	S	76
Rail	S	S	S	S	S	S	535
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	16
SCTG 13, NONMETALLIC MINERALS N.E.C.							
Total	327	100.0	6 709	100.0	6 686	100.0	861
Single modes	324	99.0	6 676	99.5	6 634	99.2	854
Truck ³	81	24.7	S	S	S	S	638
For-hire truck	S	S	S	S	S	S	829
Private truck	2	.6	S	S	S	S	S
Rail	S	S	S	S	S	S	1 204
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	3	.9	26	.4	41	.6	1 596
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	3	.9	22	.3	36	.5	1 610
Truck and water	-	-	-	-	-	-	-
Rail and water	S	S	S	S	S	S	1 188
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	745
SCTG 14, METALLIC ORES AND CONCENTRATES							
Total	S	S	S	S	S	S	1 184
Single modes	S	S	S	S	S	S	1 184
Truck ³	S	S	S	S	S	S	1 184
For-hire truck	S	S	S	S	S	S	1 184
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	-	-	-	-	-	-	-

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	3 106	100.0	361 171	100.0	401 132	100.0	431
Single modes	2 758	88.8	325 307	90.1	361 146	90.0	423
Truck ³	225	7.2	8 396	2.3	729	.2	97
For-hire truck	S	S	4 634	1.3	S	S	116
Private truck	S	S	S	S	S	S	54
Rail	2 533	81.6	316 911	87.7	360 417	89.8	1 123
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	1 633
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	117
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	1 781
Other multiple modes	S	S	S	S	S	S	41
Other and unknown modes	128	4.1	S	S	238	—	S
SCTG 17, GASOLINE AND AVIATION TURBINE FUEL							
Total	1 006	100.0	3 814	100.0	411	100.0	59
Single modes	996	99.0	3 787	99.3	411	99.9	61
Truck ³	658	65.4	2 455	64.4	259	63.1	61
For-hire truck	167	16.6	771	20.2	60	14.5	75
Private truck	491	48.8	1 684	44.2	200	48.6	58
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	19
SCTG 18, FUEL OILS							
Total	860	100.0	3 695	100.0	384	100.0	53
Single modes	852	99.1	3 666	99.2	383	99.9	54
Truck ³	639	74.3	2 778	75.2	262	68.4	52
For-hire truck	156	18.1	705	19.1	101	26.3	122
Private truck	483	56.2	2 073	56.1	162	42.1	42
Rail	S	S	S	S	S	S	853
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	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	860	100.0	5 682	100.0	3 136	100.0	177
Single modes	852	99.0	5 679	99.9	3 136	100.0	212
Truck ³	395	45.9	2 657	46.8	560	17.8	115
For-hire truck	186	21.6	1 512	26.6	398	12.7	275
Private truck	209	24.3	1 146	20.2	161	5.1	75
Rail	393	45.7	2 989	52.6	2 576	82.1	864
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	409
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	409
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 20, BASIC CHEMICALS							
Total	452	100.0	5 931	100.0	5 201	100.0	299
Single modes	450	99.6	5 926	99.9	5 197	99.9	306
Truck ³	254	56.2	1 010	17.0	365	7.0	S
For-hire truck	175	38.7	623	10.5	296	5.7	640
Private truck	79	17.6	387	6.5	69	1.3	S
Rail	192	42.5	3 425	57.8	4 657	89.5	1 336
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 201
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	361
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	184
Truck and rail	S	S	S	S	S	S	956
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	7
SCTG 21, PHARMACEUTICAL PRODUCTS							
Total	S	S	S	S	S	S	231
Single modes	S	S	S	S	S	S	90
Truck ³	S	S	S	S	S	S	90
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	90
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	547
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	547
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 22, FERTILIZERS							
Total	241	100.0	1 319	100.0	728	100.0	425
Single modes	241	100.0	1 318	100.0	728	100.0	426
Truck ³	81	33.5	667	50.6	205	28.1	302
For-hire truck	58	24.0	375	28.5	166	22.7	434
Private truck	23	9.5	S	S	39	5.4	119
Rail	S	S	651	49.3	523	71.9	805
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	29
SCTG 23, CHEMICAL PRODUCTS AND PREPARATIONS, N.E.C.							
Total	759	100.0	4 145	100.0	1 424	100.0	S
Single modes	705	92.9	4 100	98.9	1 349	94.7	S
Truck ³	625	82.3	S	S	881	61.8	S
For-hire truck	247	32.6	1 143	27.6	549	38.5	521
Private truck	S	S	S	S	332	23.3	S
Rail	80	10.6	440	10.6	469	32.9	1 084
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	42	1.0	74	5.2	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	21	2.8	42	1.0	74	5.2	1 778
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	40
SCTG 24, PLASTICS AND RUBBER							
Total	167	100.0	S	S	S	S	304
Single modes	141	84.1	S	S	S	S	S
Truck ³	140	83.9	S	S	S	S	65
For-hire truck	S	S	S	S	S	S	336
Private truck	73	43.8	16	21.2	1	4.0	28
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 534
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	23	13.5	1	1.3	1	4.3	710
Parcel, U.S. Postal Service or courier	23	13.5	1	1.3	1	4.3	710
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	47

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	\$	\$	\$	\$	\$	\$	\$
Single modes	\$	\$	\$	\$	\$	\$	\$
Truck ³	\$	\$	\$	\$	\$	\$	\$
For-hire truck	\$	\$	\$	\$	\$	\$	667
Private truck	\$	\$	\$	\$	\$	\$	16
Rail	\$	\$	\$	\$	\$	\$	1 821
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	2
SCTG 26, WOOD PRODUCTS							
Total	270	100.0	852	100.0	559	100.0	367
Single modes	268	99.3	\$	\$	559	100.0	374
Truck ³	247	91.4	\$	\$	\$	\$	362
For-hire truck	215	79.8	\$	\$	\$	\$	612
Private truck	31	11.7	74	8.7	7	1.2	111
Rail	21	7.9	60	7.1	80	14.4	1 335
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	254
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	254
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	2
SCTG 27, PULP, NEWSPRINT, PAPER, AND PAPERBOARD							
Total	\$	\$	\$	\$	\$	\$	\$
Single modes	\$	\$	\$	\$	\$	\$	11
Truck ³	\$	\$	\$	\$	\$	\$	11
For-hire truck	—	—	—	—	—	—	—
Private truck	\$	\$	\$	\$	\$	\$	11
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	338
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	338
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	12

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	18	100.0	4	100.0	—	100.0	S
Single modes	14	79.0	3	89.0	S	S	36
Truck ³	14	79.0	3	89.0	S	S	36
For-hire truck	S	S	S	S	S	S	22
Private truck	S	S	S	S	S	S	36
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	3	18.0	—	4.0	S	S	253
Parcel, U.S. Postal Service or courier	3	18.0	—	4.0	S	S	253
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	10
SCTG 29, PRINTED PRODUCTS							
Total	26	100.0	S	S	S	S	194
Single modes	S	S	S	S	S	S	S
Truck ³	S	S	S	S	S	S	21
For-hire truck	S	S	S	S	S	S	529
Private truck	8	29.3	1	6.9	S	S	10
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 102
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	1	12.2	S	S	221
Parcel, U.S. Postal Service or courier	S	S	1	12.2	S	S	221
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	5	19.7	S	S	S	S	S
SCTG 30, TEXTILES, LEATHER, AND ARTICLES OF TEXTILES OR LEATHER							
Total	349	100.0	8	100.0	9	100.0	1 116
Single modes	S	S	S	S	S	S	S
Truck ³	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	S
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	342	98.2	8	91.8	8	97.4	1 118
Parcel, U.S. Postal Service or courier	342	98.2	8	91.8	8	97.4	1 118
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	1 208

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	168	100.0	2 404	100.0	323	100.0	86
Single modes	157	93.4	2 366	98.4	319	98.7	S
Truck ³	147	87.5	2 216	92.2	224	69.3	S
For-hire truck	72	43.0	982	40.8	155	48.0	114
Private truck	S	S	S	S	S	S	49
Rail	10	5.8	149	6.2	93	28.8	616
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 715
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	S	S	—	—	—	—	173
Parcel, U.S. Postal Service or courier	S	S	—	—	—	—	173
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	42
SCTG 32, BASE METAL IN PRIMARY OR SEMIFINISHED FORMS AND IN FINISHED BASIC SHAPES							
Total	28	100.0	S	S	S	S	S
Single modes	25	87.3	S	S	S	S	45
Truck ³	25	87.3	S	S	S	S	45
For-hire truck	S	S	S	S	S	S	613
Private truck	16	55.6	S	S	S	S	30
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	499
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	499
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	463	100.0	164	100.0	43	100.0	394
Single modes	415	89.8	159	96.9	41	96.3	S
Truck ³	S	S	150	91.6	32	75.4	S
For-hire truck	104	22.5	39	24.1	23	53.2	314
Private truck	S	S	S	S	S	S	49
Rail	S	S	S	S	S	S	1 029
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	3 095
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	29	6.4	1	.7	S	S	911
Parcel, U.S. Postal Service or courier	29	6.4	1	.7	S	S	911
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnotes at end of table.

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
SCTG 34, MACHINERY							
Total	748	100.0	123	100.0	14	100.0	139
Single modes	661	88.3	119	97.0	14	95.3	71
Truck ³	658	88.0	119	97.0	14	94.2	60
For-hire truck	86	11.5	S	S	4	27.1	354
Private truck	572	76.5	110	89.1	10	67.1	36
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 269
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	59	7.8	2	1.3	1	4.4	320
Parcel, U.S. Postal Service or courier	59	7.8	2	1.3	1	4.4	320
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	41
SCTG 35, ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONENTS AND OFFICE EQUIPMENT							
Total	S	S	23	100.0	S	S	989
Single modes	140	14.9	16	70.7	3	41.6	S
Truck ³	134	14.2	16	69.6	3	32.6	S
For-hire truck	50	5.3	1	6.4	2	22.9	1 317
Private truck	84	8.9	14	63.2	1	9.7	42
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 278
Pipeline ⁴	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	1 210
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	1 210
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	12	1.2	S	S	—	.2	10
SCTG 36, MOTORIZED AND OTHER VEHICLES (INCLUDING PARTS)							
Total	231	100.0	31	100.0	5	100.0	178
Single modes	114	49.2	23	73.0	4	81.2	176
Truck ³	114	49.2	23	73.0	4	80.2	125
For-hire truck	S	S	S	S	S	S	182
Private truck	101	43.7	21	67.7	4	72.8	112
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 559
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	26	11.4	1	3.2	—	4.6	214
Parcel, U.S. Postal Service or courier	26	11.4	1	3.2	—	4.6	214
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	109

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	\$	\$	\$	\$	\$	\$	1 286
Single modes	\$	\$	\$	\$	\$	\$	591
Truck ³	\$	\$	\$	\$	\$	\$	345
For-hire truck	—	—	—	—	—	—	—
Private truck	\$	\$	\$	\$	\$	\$	345
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	\$	\$	\$	\$	\$	\$	2 296
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	1	11.4	\$	\$	—	3.3	1 348
Parcel, U.S. Postal Service or courier	1	11.4	\$	\$	—	3.3	1 348
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	879
SCTG 38, PRECISION INSTRUMENTS AND APPARATUS							
Total	43	100.0	\$	\$	\$	\$	713
Single modes	7	16.6	\$	\$	\$	\$	47
Truck ³	7	16.6	\$	\$	\$	\$	47
For-hire truck	—	—	—	—	—	—	—
Private truck	7	16.6	\$	\$	\$	\$	47
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	36	83.0	—	23.3	\$	\$	1 047
Parcel, U.S. Postal Service or courier	36	83.0	—	23.3	\$	\$	1 047
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	\$
SCTG 39, FURNITURE, MATTRESSES AND MATTRESS SUPPORTS, LAMPS, LIGHTING FITTINGS, AND ILLUMINATED SIGNS							
Total	\$	\$	\$	\$	\$	\$	68
Single modes	\$	\$	\$	\$	\$	\$	116
Truck ³	\$	\$	\$	\$	\$	\$	116
For-hire truck	—	—	—	—	—	—	—
Private truck	\$	\$	\$	\$	\$	\$	116
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	150
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	150
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	\$	\$	\$	\$	\$	\$	3

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	241	100.0	31	100.0	15	100.0	1 033
Single modes	128	52.9	27	85.6	9	60.3	S
Truck ³	121	50.0	27	85.4	9	59.8	S
For-hire truck	67	27.8	S	S	5	31.2	977
Private truck	54	22.2	20	64.1	4	28.6	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	2 245
Pipeline ⁴	—	—	—	—	—	—	S
Multiple modes	110	45.5	4	14.1	S	S	1 196
Parcel, U.S. Postal Service or courier	98	40.8	3	10.7	4	27.9	1 196
Truck and rail	S	S	S	S	S	S	1 576
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	313
SCTG 41, WASTE AND SCRAP							
Total	S	S	S	S	S	S	539
Single modes	S	S	S	S	S	S	539
Truck ³	S	S	S	S	S	S	539
For-hire truck	S	S	S	S	S	S	557
Private truck	S	S	S	S	S	S	536
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—
SCTG 43, MIXED FREIGHT							
Total	142	100.0	S	S	S	S	S
Single modes	101	70.8	S	S	S	S	S
Truck ³	101	70.8	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	452
Private truck	75	53.0	6	14.5	S	S	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline ⁴	—	—	—	—	S	S	S
Multiple modes	17	12.3	S	S	S	S	353
Parcel, U.S. Postal Service or courier	14	9.6	—	.9	—	.5	351
Truck and rail	S	S	S	S	S	S	997
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnotes at end of table.

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles ¹		Average miles per shipment
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent	
COMMODITY UNKNOWN							
Total	19	100.0	S	S	S	S	294
Single modes	17	90.5	S	S	S	S	S
Truck ³	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	341
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	1 245
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline ⁴	-	-	-	-	S	S	S
Multiple modes	S	S	S	S	-	-	478
Parcel, U.S. Postal Service or courier	S	S	S	S	-	-	478
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	4

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

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

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

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

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

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

State of destination	Value		Tons		Ton-miles ¹	
	2002 (million dollars)	Percent	2002 (thousands)	Percent	2002 (millions)	Percent
Total	12 106	100.0	401 092	100.0	421 230	100.0
NEW ENGLAND STATES						
Connecticut	S	S	S	S	S	S
Maine	S	S	S	S	S	S
Massachusetts	S	S	S	S	S	S
New Hampshire	9	—	S	S	S	S
Rhode Island	S	S	S	S	S	S
Vermont	S	S	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	23	.2	78	—	161	—
New York	36	.3	196	—	364	—
Pennsylvania	118	1.0	4 846	1.2	8 548	2.0
EAST NORTH CENTRAL STATES						
Illinois	419	3.5	32 614	8.1	38 352	9.1
Indiana	148	1.2	14 668	3.7	19 205	4.6
Michigan	S	.6	7 252	1.8	10 344	2.5
Ohio	138	1.1	7 899	2.0	11 556	2.7
Wisconsin	247	2.0	22 932	5.7	28 427	6.7
WEST NORTH CENTRAL STATES						
Iowa	189	1.6	15 056	3.8	13 486	3.2
Kansas	211	1.7	16 013	4.0	12 178	2.9
Minnesota	109	.9	8 330	2.1	8 866	2.1
Missouri	290	2.4	32 007	8.0	32 307	7.7
Nebraska	585	4.8	11 948	3.0	5 349	1.3
North Dakota	31	.3	110	—	76	—
South Dakota	185	1.5	2 644	.7	S	S
SOUTH ATLANTIC STATES						
Delaware	S	S	S	S	S	S
District of Columbia	S	S	S	S	S	S
Florida	S	—	233	—	536	.1
Georgia	85	.7	6 073	1.5	10 665	2.5
Maryland	20	.2	S	S	S	S
North Carolina	23	.2	280	—	618	.1
South Carolina	S	S	S	S	S	S
Virginia	28	.2	29	—	54	—
West Virginia	S	S	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	100	.8	11 760	2.9	18 345	4.4
Kentucky	55	.5	4 005	1.0	5 586	1.3
Mississippi	2	—	S	S	S	S
Tennessee	89	.7	2 263	.6	3 771	.9
WEST SOUTH CENTRAL STATES						
Arkansas	99	.8	9 891	2.5	12 048	2.9
Louisiana	S	S	S	S	S	S
Oklahoma	210	1.7	14 295	3.6	15 066	3.6
Texas	658	5.4	55 108	13.7	75 682	18.0
MOUNTAIN STATES						
Arizona	57	.5	372	—	348	—
Colorado	667	5.5	13 736	3.4	5 406	1.3
Idaho	195	1.6	1 803	.4	654	.2
Montana	182	1.5	1 329	.3	425	.1
Nevada	99	.8	499	.1	374	—
New Mexico	110	.9	S	S	S	S
Utah	375	3.1	5 082	1.3	S	S
Wyoming	4 568	37.7	50 599	12.6	4 642	1.1
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	493	4.1	1 209	.3	1 365	.3
Hawaii	S	S	S	S	S	S
Oregon	189	1.6	S	S	S	S
Washington	102	.8	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	15 548	100.0	68 986	100.0	11 717	100.0
NEW ENGLAND STATES						
Connecticut	8	—	S	S	S	S
Maine	S	S	S	S	S	S
Massachusetts	S	S	1	—	1	—
New Hampshire	S	S	S	S	S	S
Rhode Island	S	S	S	S	S	S
Vermont	5	—	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	31	.2	1	—	1	—
New York	34	.2	S	S	S	S
Pennsylvania	85	.5	25	—	44	.4
EAST NORTH CENTRAL STATES						
Illinois	284	1.8	160	.2	190	1.6
Indiana	S	S	4	—	S	—
Michigan	S	S	S	S	S	S
Ohio	314	2.0	S	S	S	S
Wisconsin	97	.6	S	S	S	S
WEST NORTH CENTRAL STATES						
Iowa	S	S	86	.1	65	.6
Kansas	80	.5	S	S	S	S
Minnesota	110	.7	54	—	43	.4
Missouri	132	.8	S	S	S	S
Nebraska	215	1.4	50	—	18	.2
North Dakota	36	.2	S	S	S	S
South Dakota	188	1.2	680	1.0	130	1.1
SOUTH ATLANTIC STATES						
Delaware	S	S	S	S	S	S
District of Columbia	—	—	—	—	—	—
Florida	S	S	S	S	S	S
Georgia	42	.3	S	S	S	S
Maryland	S	S	S	S	S	S
North Carolina	S	S	S	S	S	S
South Carolina	S	S	S	S	S	S
Virginia	27	.2	S	S	S	S
West Virginia	14	—	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	S	S	S	S	S	S
Kentucky	S	S	7	—	S	—
Mississippi	S	S	S	S	S	S
Tennessee	108	.7	12	—	16	.1
WEST SOUTH CENTRAL STATES						
Arkansas	35	.2	S	S	S	S
Louisiana	40	.3	23	—	37	.3
Oklahoma	S	S	S	S	S	S
Texas	299	1.9	115	.2	131	1.1
MOUNTAIN STATES						
Arizona	30	.2	5	—	4	—
Colorado	2 403	15.5	S	S	S	S
Idaho	277	1.8	474	.7	S	S
Montana	639	4.1	888	1.3	283	2.4
Nevada	74	.5	128	.2	74	.6
New Mexico	34	.2	S	S	12	.1
Utah	1 287	8.3	5 699	8.3	1 183	10.1
Wyoming	4 568	29.4	50 599	73.3	4 642	39.6
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	214	1.4	43	—	45	.4
Hawaii	S	S	S	S	S	S
Oregon	63	.4	18	—	19	.2
Washington	112	.7	30	—	27	.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.

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.

Discussion of Survey Changes and Comparing Estimates

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

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

INDUSTRY COVERAGE CHANGES

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

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

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

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

No adjustments have been made to the 1993 CFS estimates.

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

AUXILIARY ESTABLISHMENT COVERAGE CHANGES

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

COMPARISON DATA AND STATISTICAL VALIDITY

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

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

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

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

Mode of transportation	Value			Tons			Ton-miles ¹			Average miles per shipment		
	2002 (million dollars)	1997 (million dollars)	Percent change	2002 (thousands)	1997 (thousands)	Percent change	2002 (millions)	1997 (millions)	Percent change	2002	1997	Percent change
Total	12 106	9 174	32.0	401 092	274 251	46.3	421 230	276 172	52.5	589	S	S
Single modes	10 005	7 765	28.8	364 696	234 108	55.8	381 070	240 157	58.7	165	130	27.1
Truck ²	5 675	4 207	34.9	30 721	21 079	45.7	5 740	4 334	32.4	110	87	26.2
Rail	3 649	3 306	10.4	329 697	212 398	55.2	374 875	235 753	59.0	1 107	1 167	-5.2
Water	—	—	—	—	—	—	—	—	—	—	—	—
Air (includes truck and air)	19	S	S	S	S	S	S	S	S	2 437	1 540	58.2
Pipeline ³	S	S	S	4 278	S	S	S	S	S	S	S	S
Multiple modes	1 734	1 047	65.6	S	24 641	S	S	35 765	S	962	S	S
Parcel, U.S. Postal Service or courier ..	S	838	S	23	S	S	21	18	22.4	961	S	S
Truck and rail	45	71	-36.7	S	S	S	S	S	S	1 605	1 597	.5
All other multiple modes	S	138	S	S	24 419	S	S	35 488	S	1 664	1 419	17.3
Other and unknown modes ...	367	362	1.5	S	S	S	265	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.
²Truck as a single mode includes shipments that were made by only private truck, only for-hire truck, or a combination of private truck and for-hire truck.

³Estimates for pipeline exclude shipments of crude petroleum.

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

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

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

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

SCTG code	Commodity description	Value			Tons			Ton-miles ¹			Average miles per shipment		
		2002 (million dollars)	1997 (million dollars)	Percent change	2002 (thousands)	1997 (thousands)	Percent change	2002 (millions)	1997 (millions)	Percent change	2002	1997	Percent change
	Total²	12 106	9 174	32.0	401 092	274 251	46.3	421 230	276 172	52.5	589	S	S
01-05	Agricultural products and fish	52	25	106.5	290	S	S	97	123	-21.6	S	S	S
06-09	Grains, alcohol, and tobacco products	460	417	10.2	544	565	-3.8	179	341	-47.5	S	S	S
10-14	Stones, nonmetallic minerals, and metallic ores	388	464	-16.4	10 246	7 732	32.5	7 074	5 944	19.0	366	408	-10.3
15-19	Coal and petroleum products	5 833	3 638	60.4	374 361	250 922	49.2	405 063	255 706	58.4	138	177	-21.9
20-24	Basic chemicals, chemical, and pharmaceutical products	1 620	1 710	-5.2	11 471	12 432	-7.7	7 378	13 058	-43.5	251	S	S
25-30	Logs, wood products, and textile and leather	666	S	S	875	769	13.8	573	427	34.2	786	S	S
31-34	Base metal and machinery ..	1 406	885	59.0	2 703	1 356	99.4	383	546	-29.8	213	166	28.0
35-38	Electronic, motorized vehicles, and precision instruments	S	366	S	56	11	406.1	13	S	S	875	487	79.5
39-43	Furniture, mixed freight and misc. manufactured prod. ..	440	318	38.5	S	40	S	S	12	S	653	458	42.8
--	Commodity unknown	19	S	S	S	S	S	S	S	S	294	736	-60.1

— 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.
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	9.5	—	15.2	—	21.5	—	20.3
Single modes	6.1	3.8	12.7	3.1	16.0	3.9	14.7
Truck	5.5	3.6	11.3	1.3	15.9	.4	11.9
For-hire truck	10.0	1.7	17.4	.5	18.8	.3	10.8
Private truck	7.3	3.0	13.7	1.0	23.3	.1	13.5
Rail	11.4	3.2	14.1	3.5	16.3	3.7	2.7
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	45.8	—	S	S	S	S	13.2
Pipeline	S	S	38.5	.5	S	S	S
Multiple modes	45.4	3.9	S	S	S	S	12.2
Parcel, U.S. Postal Service or courier	S	S	28.8	—	34.2	—	12.3
Truck and rail	34.5	.1	S	S	S	S	21.5
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	28.1
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	22.7	.8	S	S	35.9	—	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-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	3.8	2.7	3.1	2.9	3.9	4.3
Truck	3.6	5.4	1.3	2.1	.4	.7
For-hire truck	1.7	2.7	.5	1.4	.3	.7
Private truck	3.0	5.3	1.0	1.1	.1	.1
Rail	3.2	3.3	3.5	3.3	3.7	4.3
Water	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Air (includes truck and air)	—	S	S	S	S	S
Pipeline	S	S	.5	S	S	S
Multiple modes	3.9	2.7	S	2.9	S	4.3
Parcel, U.S. Postal Service or courier	S	2.6	—	S	—	—
Truck and rail .....	.1	.4	S	S	S	S
Truck and water	—	—	—	—	—	—
Rail and water	S	.5	S	2.9	S	4.3
Other multiple modes	S	S	S	S	S	S
Other and unknown modes .....	.8	1.5	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-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	21.5	—	20.3
Truck	15.9	.4	11.9
Rail	16.3	3.7	2.7
Shallow draft	—	—	—
Great Lakes	—	—	—
Deep draft	—	—	—
Air	S	S	13.2
Parcel, U.S. Postal Service or courier	42.1	.2	16.8
Pipeline	S	S	S
Other and unknown modes	35.9	—	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-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	9.5	—	15.2	—	21.5	—
Less than 50 miles	11.7	3.0	23.4	2.7	21.0	.1
50 to 99 miles	24.2	2.3	38.9	2.1	47.8	.9
100 to 249 miles	11.3	1.6	33.7	1.1	36.9	.3
250 to 499 miles	13.6	1.1	19.4	1.8	21.6	2.1
500 to 749 miles	8.2	1.2	13.2	2.7	14.8	3.5
750 to 999 miles	17.2	2.3	23.1	4.9	23.2	4.8
1,000 to 1,499 miles	33.0	2.8	30.0	4.5	32.2	5.8
1,500 to 1,999 miles	41.3	.6	39.1	.1	37.9	.3
2,000 miles or more	43.8	—	S	S	47.8	—
Single modes	6.1	—	12.7	—	16.0	—
Less than 50 miles	12.8	2.8	17.8	1.0	25.9	—
50 to 99 miles	25.3	2.7	40.3	2.8	49.9	.9
100 to 249 miles	12.3	1.6	34.3	1.2	37.7	.3
250 to 499 miles	13.0	1.3	19.4	2.1	21.6	2.1
500 to 749 miles	8.5	1.5	13.2	2.9	14.8	3.4
750 to 999 miles	17.0	2.3	23.1	4.8	23.2	4.7
1,000 to 1,499 miles	15.7	1.6	19.6	3.8	19.7	5.0
1,500 to 1,999 miles	28.7	.3	39.7	.1	38.5	.3
2,000 miles or more	S	S	S	S	S	S
Truck	5.5	—	11.3	—	15.9	—
Less than 50 miles	12.7	4.1	16.1	5.1	25.6	2.0
50 to 99 miles	23.4	2.7	19.9	4.1	15.7	2.5
100 to 249 miles	8.3	2.4	23.0	3.5	25.6	3.2
250 to 499 miles	16.1	1.5	26.8	2.8	25.1	4.3
500 to 749 miles	14.1	.8	24.5	1.2	25.9	2.8
750 to 999 miles	17.0	.7	S	S	S	S
1,000 to 1,499 miles	22.6	.7	24.7	.1	26.0	.8
1,500 to 1,999 miles	16.9	.1	27.8	.2	27.8	1.2
2,000 miles or more	S	S	S	S	S	S
For-hire truck	10.0	—	17.4	—	18.8	—
Less than 50 miles	23.8	2.1	48.6	6.0	S	S
50 to 99 miles	37.2	3.4	36.0	6.4	32.8	2.9
100 to 249 miles	13.8	3.2	21.8	4.0	25.1	3.7
250 to 499 miles	15.4	2.0	37.9	4.8	34.8	4.7
500 to 749 miles	15.4	2.4	26.8	2.5	29.1	3.1
750 to 999 miles	16.3	1.4	S	S	S	S
1,000 to 1,499 miles	24.5	1.5	27.9	.3	29.2	1.4
1,500 to 1,999 miles	17.1	.4	29.9	.4	29.9	1.9
2,000 miles or more	S	S	S	S	S	S
Private truck	7.3	—	13.7	—	23.3	—
Less than 50 miles	14.0	5.3	19.9	7.3	29.8	6.0
50 to 99 miles	33.1	3.7	15.1	2.3	15.2	3.8
100 to 249 miles	7.2	2.5	28.5	4.1	29.3	3.8
250 to 499 miles	24.2	1.7	34.4	2.1	31.5	4.6
500 to 749 miles	40.6	.3	S	S	S	S
750 to 999 miles	41.4	.2	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	—	—	—	—	—	—
Rail	11.4	—	14.1	—	16.3	—
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	49.1	1.1	S	S	S	S
250 to 499 miles	17.3	3.3	22.9	2.7	24.3	2.2
500 to 749 miles	15.7	3.3	13.5	3.5	15.1	3.6
750 to 999 miles	19.5	4.0	23.2	5.0	23.3	4.7
1,000 to 1,499 miles	17.2	2.9	19.6	4.2	19.8	5.1
1,500 to 1,999 miles	46.0	.6	42.2	.1	40.8	.3
2,000 miles or more	—	—	—	—	—	—
Water	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

See footnotes at end of table.

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

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

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
Single modes—Con.						
Great Lakes	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Air (includes truck and air)	45.8	—	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	S	S	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	S	S	S	S	S	S
Pipeline	S	S	38.5	—	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	S	S	36.4	10.3	S	S
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Multiple modes	45.4	—	S	S	S	S
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	27.4	1.2	S	S	S	S
100 to 249 miles	34.8	7.3	25.1	8.6	23.9	3.9
250 to 499 miles	30.9	2.6	24.8	2.1	25.4	1.9
500 to 749 miles	44.3	2.7	S	S	S	S
750 to 999 miles	S	S	47.2	10.9	44.5	11.3
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	S	S	49.6	2.7	S	S
2,000 miles or more	S	S	S	S	S	S
Parcel, U.S. Postal Service or courier	S	S	28.8	—	34.2	—
Less than 50 miles	39.7	1.8	40.7	3.9	39.9	.2
50 to 99 miles	30.8	1.3	24.8	1.8	22.9	.4
100 to 249 miles	34.8	7.1	25.1	6.0	23.9	3.3
250 to 499 miles	30.9	2.6	24.8	2.5	25.4	1.7
500 to 749 miles	44.0	2.5	34.9	1.4	35.5	1.3
750 to 999 miles	S	S	40.9	3.9	41.1	3.6
1,000 to 1,499 miles	S	S	S	S	46.5	3.9
1,500 to 1,999 miles	S	S	32.9	1.6	32.1	2.6
2,000 miles or more	S	S	S	S	S	S
Truck and rail	34.5	—	S	S	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
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	49.9	8.6	34.8	15.6	37.0	11.4
1,500 to 1,999 miles	S	S	S	S	S	S
2,000 miles or more	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—

See footnotes at end of table.

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

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

Mode of transportation and distance shipped (based on Great Circle Distance)	Value		Tons		Ton-miles	
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage
Multiple modes—Con.						
Rail and water	S	S	S	S	S	S
Less than 50 miles	—	—	—	—	—	—
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	S	S	S	S	S	S
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other multiple modes	S	S	S	S	S	S
Less than 50 miles	S	S	S	S	S	S
50 to 99 miles	—	—	—	—	—	—
100 to 249 miles	—	—	—	—	—	—
250 to 499 miles	—	—	—	—	—	—
500 to 749 miles	—	—	—	—	—	—
750 to 999 miles	—	—	—	—	—	—
1,000 to 1,499 miles	—	—	—	—	—	—
1,500 to 1,999 miles	—	—	—	—	—	—
2,000 miles or more	—	—	—	—	—	—
Other and unknown modes	22.7	—	S	S	35.9	—
Less than 50 miles	29.7	10.3	S	S	29.2	8.0
50 to 99 miles	S	S	S	S	S	S
100 to 249 miles	S	S	S	S	S	S
250 to 499 miles	S	S	S	S	S	S
500 to 749 miles	S	S	S	S	S	S
750 to 999 miles	S	S	S	S	S	S
1,000 to 1,499 miles	40.4	.7	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	9.5	—	15.2	—	21.5	—	20.3
Less than 50 lb	S	S	18.7	—	37.1	—	19.4
50 to 99 lb	11.8	.2	9.9	—	23.9	—	25.4
100 to 499 lb	12.0	.5	17.6	—	14.5	—	12.1
500 to 749 lb	30.4	.4	19.9	—	32.0	—	45.9
750 to 999 lb	16.2	—	23.5	—	16.9	—	45.5
1,000 to 9,999 lb	14.8	1.7	22.6	—	10.1	—	43.8
10,000 to 49,999 lb	9.2	2.2	19.5	.6	22.4	.2	26.6
50,000 to 99,999 lb	8.8	1.2	13.6	.6	20.1	.2	10.3
100,000 lb or more	13.2	3.6	16.2	.7	21.8	.3	4.2
Single modes	6.1	—	12.7	—	16.0	—	14.7
Less than 50 lb	15.3	.2	20.7	—	19.2	—	29.0
50 to 99 lb	19.0	.1	17.4	—	19.8	—	16.9
100 to 499 lb	14.4	.4	18.4	—	18.2	—	9.0
500 to 749 lb	22.0	.3	21.1	—	26.2	—	S
750 to 999 lb	15.2	—	23.6	—	14.8	—	39.7
1,000 to 9,999 lb	14.2	1.6	20.3	—	9.7	—	42.4
10,000 to 49,999 lb	9.7	2.2	19.9	.5	23.5	.2	27.0
50,000 to 99,999 lb	8.9	1.6	13.7	.7	20.2	.2	10.6
100,000 lb or more	12.2	3.2	13.5	.8	16.2	.3	2.8
Truck²	5.5	—	11.3	—	15.9	—	11.9
Less than 50 lb	14.6	.4	20.9	—	23.6	—	30.3
50 to 99 lb	19.0	.2	17.5	—	22.1	—	20.7
100 to 499 lb	14.6	.6	18.5	—	19.1	—	10.1
500 to 749 lb	22.1	.4	21.1	—	26.2	—	S
750 to 999 lb	15.2	.2	23.6	—	14.8	—	39.7
1,000 to 9,999 lb	14.3	2.0	20.3	.6	9.3	.3	39.7
10,000 to 49,999 lb	10.8	2.9	20.1	6.1	24.6	4.4	26.6
50,000 to 99,999 lb	9.3	3.2	14.1	2.9	21.0	5.6	10.3
100,000 lb or more	23.0	1.6	27.1	5.4	25.6	3.0	19.6
For-hire truck	10.0	—	17.4	—	18.8	—	10.8
Less than 50 lb	25.8	.3	22.9	—	38.3	—	22.7
50 to 99 lb	29.1	.1	24.7	—	31.9	—	33.6
100 to 499 lb	23.0	.8	21.0	—	20.9	—	7.4
500 to 749 lb	48.1	1.0	32.7	—	41.4	—	18.3
750 to 999 lb	30.7	.3	25.4	—	25.3	—	30.3
1,000 to 9,999 lb	17.9	2.2	19.1	.2	17.3	.3	22.3
10,000 to 49,999 lb	11.7	3.8	19.9	5.3	29.3	4.9	16.0
50,000 to 99,999 lb	15.7	4.1	18.8	7.0	18.6	7.7	12.4
100,000 lb or more	S	S	46.5	7.2	41.9	4.5	27.8
Private truck	7.3	—	13.7	—	23.3	—	13.5
Less than 50 lb	14.7	.6	21.6	—	23.8	—	10.3
50 to 99 lb	20.8	.2	18.7	—	26.1	—	14.1
100 to 499 lb	17.3	.7	18.9	.1	24.8	—	16.1
500 to 749 lb	28.7	.3	24.1	—	21.1	—	21.5
750 to 999 lb	17.5	.2	26.8	—	27.2	—	19.8
1,000 to 9,999 lb	17.5	3.0	23.2	1.1	17.7	1.0	25.1
10,000 to 49,999 lb	20.2	4.8	30.4	6.8	27.0	5.5	42.7
50,000 to 99,999 lb	11.4	4.0	18.6	5.4	30.8	5.6	11.4
100,000 lb or more	27.4	2.4	41.3	9.0	32.6	6.6	22.5
Rail	11.4	—	14.1	—	16.3	—	2.7
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	S	S	S	S	S	S	38.8
10,000 to 49,999 lb	43.9	1.3	32.8	—	35.7	—	15.4
50,000 to 99,999 lb	33.9	.3	30.5	—	34.2	—	36.2
100,000 lb or more	11.2	1.4	14.1	—	16.3	—	2.4
Water	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

See footnote at end of table.

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

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

Mode of transportation and shipment weight	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
Single modes—Con.							
Great Lakes	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Air (includes truck and air)	45.8	—	\$	\$	\$	\$	13.2
Less than 50 lb	\$	\$	27.9	15.9	30.4	16.5	13.0
50 to 99 lb	\$	\$	46.7	7.9	\$	\$	26.4
100 to 499 lb	\$	\$	\$	\$	\$	\$	28.7
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	28.1
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Pipeline³	\$	\$	38.5	—	\$	\$	\$
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	\$	\$	38.5	5	\$	\$	\$
100,000 lb or more	\$	\$	—	—	—	—	—
Multiple modes	45.4	—	\$	\$	\$	\$	12.2
Less than 50 lb	\$	\$	33.7	11.1	39.3	10.5	12.5
50 to 99 lb	26.8	3.5	29.4	4.1	32.9	4.3	11.7
100 to 499 lb	20.5	5.0	18.6	4.2	26.6	4.7	10.9
500 to 749 lb	\$	\$	\$	\$	\$	\$	29.8
750 to 999 lb	\$	\$	\$	\$	\$	\$	31.6
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	31.6
10,000 to 49,999 lb	36.1	.7	34.5	14.8	36.5	15.5	21.5
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	\$	\$	\$	\$	\$	\$	28.0
Parcel, U.S. Postal Service or courier	\$	\$	28.8	—	34.2	—	12.3
Less than 50 lb	\$	\$	33.7	6.8	39.3	9.1	12.5
50 to 99 lb	26.8	3.8	29.4	2.8	32.9	3.5	11.7
100 to 499 lb	20.5	5.9	18.6	5.5	26.6	6.5	10.9
500 to 749 lb	\$	\$	\$	\$	\$	\$	29.8
750 to 999 lb	\$	\$	\$	\$	\$	\$	31.6
1,000 to 9,999 lb	\$	\$	\$	\$	\$	\$	31.6
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—
Truck and rail	34.5	—	\$	\$	\$	\$	21.5
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	36.1	4.6	\$	\$	36.5	10.5	21.5
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	\$	\$	\$	\$	\$	\$	31.6
Truck and water	—	—	—	—	—	—	—
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	—	—	—	—	—	—	—

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	28.1
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	28.1
Other multiple modes	S	S	S	S	S	S	31.6
Less than 50 lb	—	—	—	—	—	—	—
50 to 99 lb	—	—	—	—	—	—	—
100 to 499 lb	—	—	—	—	—	—	—
500 to 749 lb	—	—	—	—	—	—	—
750 to 999 lb	—	—	—	—	—	—	—
1,000 to 9,999 lb	—	—	—	—	—	—	—
10,000 to 49,999 lb	—	—	—	—	—	—	—
50,000 to 99,999 lb	—	—	—	—	—	—	—
100,000 lb or more	S	S	S	S	S	S	31.6
Other and unknown modes	22.7	—	S	S	35.9	—	S
Less than 50 lb	36.4	4.1	43.5	—	S	S	S
50 to 99 lb	S	S	49.9	—	S	S	S
100 to 499 lb	46.0	1.9	48.2	—	S	S	S
500 to 749 lb	S	S	45.3	—	S	S	35.9
750 to 999 lb	S	S	S	S	S	S	42.4
1,000 to 9,999 lb	S	S	S	S	39.8	1.9	S
10,000 to 49,999 lb	S	S	S	S	S	S	S
50,000 to 99,999 lb	48.3	3.0	S	S	S	S	S
100,000 lb or more	39.4	10.5	S	S	37.5	6.0	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-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	9.5	—	15.2	—	21.5	—	20.3
01	Live animals and live fish	—	—	—	—	—	—	—
02	Cereal grains	S	S	S	S	S	S	34.4
03	Other agricultural products	S	S	S	S	S	S	27.7
04	Animal feed and products of animal origin, n.e.c.	S	S	S	S	48.4	—	S
05	Meat, fish, seafood, and their preparations	S	S	S	S	S	S	S
06	Milled grain products and preparations, and bakery products	S	S	S	S	S	S	31.6
07	Other prepared foodstuffs and fats and oils	24.4	.6	23.1	.3	28.0	—	S
08	Alcoholic beverages	46.8	.6	S	S	S	S	29.0
09	Tobacco products	S	S	S	S	S	S	28.1
10	Monumental or building stone	S	S	S	S	S	S	31.6
11	Natural sands	30.0	—	38.5	—	S	S	28.0
12	Gravel and crushed stone	42.3	—	44.2	.3	S	S	39.2
13	Nonmetallic minerals n.e.c.	47.1	.7	44.3	.6	44.5	.7	13.9
14	Metallic ores and concentrates	S	S	S	S	S	S	29.8
15	Coal	15.9	3.2	16.9	1.4	22.6	1.4	35.7
17	Gasoline and aviation turbine fuel	26.9	2.0	27.9	.2	26.1	—	37.6
18	Fuel oils	24.5	1.7	23.2	.3	21.2	—	36.4
19	Coal and petroleum products, n.e.c.	23.9	1.2	28.2	.5	34.7	.3	31.9
20	Basic chemicals	25.8	1.2	34.4	.8	39.1	.8	46.7
21	Pharmaceutical products	S	S	S	S	S	S	33.3
22	Fertilizers	42.8	1.0	36.8	.1	43.2	—	21.8
23	Chemical products and preparations, n.e.c.	41.4	3.0	47.6	.6	30.2	.1	S
24	Plastics and rubber	34.0	.5	S	S	S	S	27.8
25	Logs and other wood in the rough	S	S	S	S	S	S	S
26	Wood products	34.9	.7	49.9	.1	49.3	—	14.7
27	Pulp, newsprint, paper, and paperboard	S	S	S	S	S	S	S
28	Paper or paperboard articles	39.1	—	40.6	—	40.7	—	S
29	Printed products	33.9	—	S	S	S	S	41.9
30	Textiles, leather, and articles of textiles or leather	47.2	1.4	36.5	—	39.8	—	12.8
31	Nonmetallic mineral products	26.1	.4	32.5	.2	12.2	—	45.5
32	Base metal in primary or semifinished forms and in finished basic shapes	42.7	.1	S	S	S	S	S
33	Articles of base metal	43.9	1.7	40.1	—	35.9	—	36.8
34	Machinery	20.1	1.0	22.8	—	17.2	—	22.0
35	Electronic and other electrical equipment and components and office equipment	S	S	29.0	—	S	S	23.6
36	Motorized and other vehicles (including parts)	28.4	.6	29.7	—	36.1	—	22.0
37	Transportation equipment, n.e.c.	S	S	S	S	S	S	25.9
38	Precision instruments and apparatus	36.0	.1	S	S	S	S	31.6
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	S	S	S	S	S	25.6
40	Miscellaneous manufactured products	18.9	.5	18.0	—	25.6	—	11.9
41	Waste and scrap	S	S	S	S	S	S	30.5
43	Mixed freight	27.1	.4	S	S	S	S	S
--	Commodity unknown	38.1	—	S	S	S	S	46.5

— 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-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	-	-	-	-	-	-
02	Cereal grains	S	S	S	S	S	S
03	Other agricultural products	S	S	S	S	S	S
04	Animal feed and products of animal origin, n.e.c.	-	-	-	-	-	-
05	Meat, fish, seafood, and their preparations	S	-	S	-	S	-
06	Milled grain products and preparations, and bakery products	S	S	S	S	S	S
07	Other prepared foodstuffs and fats and oils .....	.6	2.0	.1	1.0	.1	1.0
08	Alcoholic beverages .....	.6	S	S	S	S	S
09	Tobacco products	S	S	S	S	S	S
10	Monumental or building stone	S	-	S	-	S	-
11	Natural sands	-	-	-	-	S	-
12	Gravel and crushed stone	-	S	.3	1.0	S	S
13	Nonmetallic minerals n.e.c. ....	.7	1.2	.6	1.0	.7	1.3
14	Metallic ores and concentrates	S	S	S	S	S	S
15	Coal	3.2	3.7	1.4	4.0	1.4	3.0
17	Gasoline and aviation turbine fuel	2.0	.7	.2	.3	-	-
18	Fuel oils	1.7	1.8	.3	.3	-	.2
19	Coal and petroleum products, n.e.c.	1.2	2.1	.5	1.2	.3	.6
20	Basic chemicals	1.2	3.2	.8	1.2	.8	1.4
21	Pharmaceutical products	S	S	S	S	S	S
22	Fertilizers	1.0	.5	.1	.2	-	.2
23	Chemical products and preparations, n.e.c.	3.0	.4	.6	1.1	.1	1.1
24	Plastics and rubber .....	.5	S	S	S	S	S
25	Logs and other wood in the rough	S	S	S	S	S	S
26	Wood products .....	.7	.4	.1	.1	-	-
27	Pulp, newsprint, paper, and paperboard	S	S	S	S	S	S
28	Paper or paperboard articles	-	S	S	S	S	S
29	Printed products	-	S	S	S	S	S
30	Textiles, leather, and articles of textiles or leather	1.4	.6	1.1	1.0	1.1	1.1
31	Nonmetallic mineral products .....	.4	.5	.2	.2	-	1.1
32	Base metal in primary or semifinished forms and in finished basic shapes .....	.1	S	S	-	S	S
33	Articles of base metal	1.7	1.1	-	-	-	-
34	Machinery	1.0	S	-	-	-	S
35	Electronic and other electrical equipment and components and office equipment	S	S	-	S	S	S
36	Motorized and other vehicles (including parts) .....	.6	S	-	S	-	S
37	Transportation equipment, n.e.c.	S	S	S	S	S	S
38	Precision instruments and apparatus .....	.1	S	S	S	S	S
39	Furniture, mattresses and mattress supports, lamps, lighting fittings, and illuminated signs	S	.1	S	S	S	S
40	Miscellaneous manufactured products .....	.5	1.1	1.1	1.0	1.0	1.0
41	Waste and scrap	S	S	S	S	S	S
43	Mixed freight .....	.4	S	S	S	S	S
--	Commodity unknown	-	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-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	9.5	—	15.2	—	21.5	—	20.3
Single modes	6.1	3.8	12.7	3.1	16.0	3.9	14.7
Truck	5.5	3.6	11.3	1.3	15.9	.4	11.9
For-hire truck	10.0	1.7	17.4	.5	18.8	.3	10.8
Private truck	7.3	3.0	13.7	1.0	23.3	.1	13.5
Rail	11.4	3.2	14.1	3.5	16.3	3.7	2.7
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	45.8	—	S	S	S	S	13.2
Pipeline	S	S	38.5	.5	S	S	S
Multiple modes	45.4	3.9	S	S	S	S	12.2
Parcel, U.S. Postal Service or courier	S	S	28.8	—	34.2	—	12.3
Truck and rail	34.5	.1	S	S	S	S	21.5
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	28.1
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	22.7	.8	S	S	35.9	—	S
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	S	S	S	S	S	S	34.4
Single modes	S	S	S	S	S	S	34.4
Truck	S	S	S	S	S	S	41.3
For-hire truck	S	S	S	S	S	S	29.8
Private truck	S	S	S	S	S	S	38.2
Rail	S	S	S	S	S	S	29.8
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

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	\$	\$	\$	\$	\$	\$	27.7
Single modes	\$	\$	\$	\$	\$	\$	27.7
Truck	\$	\$	\$	\$	\$	\$	29.5
For-hire truck	\$	\$	\$	\$	\$	\$	29.4
Private truck	\$	\$	\$	\$	\$	\$	30.3
Rail	\$	\$	\$	\$	\$	\$	28.2
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	\$	\$	\$
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	-	-	-	-	-	-	-
SCTG 04, ANIMAL FEED AND PRODUCTS OF ANIMAL ORIGIN, N.E.C.							
Total	\$	\$	\$	\$	48.4	-	\$
Single modes	\$	\$	\$	\$	48.5	-	\$
Truck	\$	\$	\$	\$	44.9	13.1	\$
For-hire truck	\$	\$	\$	\$	\$	\$	\$
Private truck	\$	\$	\$	\$	47.2	14.4	\$
Rail	\$	\$	\$	\$	\$	\$	26.0
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	\$	\$	\$
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	\$	\$	\$	\$	\$	\$	31.6
SCTG 05, MEAT, FISH, SEAFOOD, AND THEIR PREPARATIONS							
Total	\$	\$	\$	\$	\$	\$	\$
Single modes	\$	\$	\$	\$	\$	\$	31.6
Truck	\$	\$	\$	\$	\$	\$	31.6
For-hire truck	-	-	-	-	-	-	-
Private truck	\$	\$	\$	\$	\$	\$	31.6
Rail	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	\$	\$	\$
Multiple modes	\$	\$	\$	\$	\$	\$	31.6
Parcel, U.S. Postal Service or courier	\$	\$	\$	\$	\$	\$	31.6
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	\$	\$	\$	\$	\$	\$	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	S	S	S	S	S	S	31.6
Single modes	S	S	S	S	S	S	31.6
Truck	S	S	S	S	S	S	31.6
For-hire truck	S	S	S	S	S	S	31.6
Private truck	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 07, OTHER PREPARED FOODSTUFFS AND FATS AND OILS							
Total	24.4	—	23.1	—	28.0	—	S
Single modes	24.4	—	23.1	.2	27.9	.2	S
Truck	27.6	15.8	26.1	15.5	38.5	14.1	S
For-hire truck	37.7	13.3	34.2	13.6	45.6	14.8	25.7
Private truck	42.2	10.5	48.0	10.2	40.0	5.1	S
Rail	44.2	15.8	43.4	15.5	45.4	14.1	21.2
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	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 08, ALCOHOLIC BEVERAGES							
Total	46.8	—	S	S	S	S	29.0
Single modes	46.8	—	S	S	S	S	29.0
Truck	46.8	—	S	S	S	S	29.0
For-hire truck	43.6	7.9	44.6	11.9	45.4	9.0	25.9
Private truck	S	S	S	S	S	S	29.3
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	—	—	—	—	—	—	—

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	S	S	S	S	S	S	28.1
Single modes	S	S	S	S	S	S	28.1
Truck	S	S	S	S	S	S	28.1
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	28.1
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 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	30.0	—	38.5	—	S	S	28.0
Single modes	30.1	.3	38.4	.7	S	S	27.9
Truck	30.1	.3	38.4	.7	S	S	27.9
For-hire truck	S	S	S	S	S	S	44.0
Private truck	32.7	9.4	43.1	5.8	S	S	32.0
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6

See footnote at end of table.

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 12, GRAVEL AND CRUSHED STONE							
Total	42.3	—	44.2	—	S	S	39.2
Single modes	43.2	3.4	44.8	3.5	S	S	38.2
Truck	42.3	3.6	42.5	4.3	S	S	39.5
For-hire truck	S	S	S	S	S	S	31.0
Private truck	34.3	10.9	37.3	10.6	S	S	40.6
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	31.6
SCTG 13, NONMETALLIC MINERALS N.E.C.							
Total	47.1	—	44.3	—	44.5	—	13.9
Single modes	47.5	.7	44.5	.3	44.7	.3	14.1
Truck	49.2	8.4	S	S	S	S	17.8
For-hire truck	S	S	S	S	S	S	7.2
Private truck	50.0	.8	S	S	S	S	S
Rail	S	S	S	S	S	S	4.6
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	43.7	.7	37.0	.3	41.0	.3	24.7
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	45.3	.7	44.1	.2	47.2	.2	26.7
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	31.6
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	33.4
SCTG 14, METALLIC ORES AND CONCENTRATES							
Total	S	S	S	S	S	S	29.8
Single modes	S	S	S	S	S	S	29.8
Truck	S	S	S	S	S	S	29.8
For-hire truck	S	S	S	S	S	S	29.8
Private truck	—	—	—	—	—	—	—
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	—	—	—	—	—	—	—

See footnote at end of table.

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 15, COAL							
Total	15.9	—	16.9	—	22.6	—	35.7
Single modes	14.2	3.6	14.0	3.4	16.9	4.1	39.4
Truck	41.7	2.6	38.1	1.3	42.2	.2	17.2
For-hire truck	S	S	41.5	.6	S	S	19.9
Private truck	S	S	S	S	S	S	20.5
Rail	14.0	5.1	14.6	4.1	16.9	4.0	5.4
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	29.7
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	S	S	S	S	S	S	31.6
Truck and water	—	—	—	—	—	—	—
Rail and water	S	S	S	S	S	S	29.8
Other multiple modes	S	S	S	S	S	S	31.6
Other and unknown modes	40.1	2.1	S	S	38.2	—	S
SCTG 17, GASOLINE AND AVIATION TURBINE FUEL							
Total	26.9	—	27.9	—	26.1	—	37.6
Single modes	27.6	6.5	28.4	6.0	26.2	4.2	35.5
Truck	23.0	11.1	22.4	11.3	32.4	13.6	35.8
For-hire truck	40.1	4.8	37.3	8.2	41.2	6.7	24.3
Private truck	25.7	11.4	25.5	11.3	38.2	11.6	40.2
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6
SCTG 18, FUEL OILS							
Total	24.5	—	23.2	—	21.2	—	36.4
Single modes	24.9	2.2	23.6	2.0	21.2	.3	35.2
Truck	10.9	8.8	11.0	8.6	22.0	9.6	35.1
For-hire truck	23.6	7.7	26.7	7.6	36.6	6.0	22.2
Private truck	18.4	8.4	18.5	8.5	18.8	9.1	47.3
Rail	S	S	S	S	S	S	28.2
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	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 19, COAL AND PETROLEUM PRODUCTS, N.E.C.							
Total	23.9	—	28.2	—	34.7	—	31.9
Single modes	24.4	2.2	28.2	1.1	34.7	—	30.0
Truck	24.4	9.1	28.0	7.2	35.9	6.6	24.7
For-hire truck	44.7	4.8	45.9	6.7	45.1	4.6	21.8
Private truck	34.4	9.4	32.8	7.1	28.6	3.0	29.5
Rail	36.8	6.9	31.3	6.8	35.4	6.6	11.3
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	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	S
SCTG 20, BASIC CHEMICALS							
Total	25.8	—	34.4	—	39.1	—	46.7
Single modes	25.9	.4	34.4	—	39.1	.1	45.3
Truck	21.8	10.3	26.1	9.9	36.2	9.8	S
For-hire truck	29.3	11.8	24.6	4.5	35.5	6.9	15.4
Private truck	46.8	7.3	35.9	8.1	48.5	3.1	S
Rail	46.2	10.6	45.4	9.7	41.6	10.8	14.7
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	34.3
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	30.9
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	42.3
SCTG 21, PHARMACEUTICAL PRODUCTS							
Total	S	S	S	S	S	S	33.3
Single modes	S	S	S	S	S	S	42.9
Truck	S	S	S	S	S	S	42.9
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	42.9
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 22, FERTILIZERS							
Total	42.8	—	36.8	—	43.2	—	21.8
Single modes	42.8	—	36.8	—	43.2	—	21.8
Truck	32.1	12.3	32.0	9.2	36.2	13.2	20.6
For-hire truck	40.9	9.1	41.1	8.9	42.8	10.0	22.3
Private truck	40.9	10.5	S	S	47.8	10.3	21.9
Rail	S	S	46.7	9.2	46.8	13.2	25.8
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	—	—	—	—	—	—	—
Parcel, U.S. Postal Service or courier	—	—	—	—	—	—	—
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6
SCTG 23, CHEMICAL PRODUCTS AND PREPARATIONS, N.E.C.							
Total	41.4	—	47.6	—	30.2	—	S
Single modes	40.8	2.3	48.2	5.5	32.7	7.4	S
Truck	43.3	3.9	S	S	31.1	6.1	S
For-hire truck	26.8	8.4	37.1	9.9	33.3	5.3	19.1
Private truck	S	S	S	S	43.9	6.6	S
Rail	39.1	5.2	34.3	4.6	37.7	8.4	21.6
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	41.6	5.5	44.1	7.4	S
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	S
Truck and rail	42.9	2.7	42.1	5.5	44.1	7.4	26.0
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	47.3
SCTG 24, PLASTICS AND RUBBER							
Total	34.0	—	S	S	S	S	27.8
Single modes	41.1	14.7	S	S	S	S	S
Truck	41.2	14.8	S	S	S	S	35.9
For-hire truck	S	S	S	S	S	S	26.0
Private truck	34.2	11.4	32.5	14.7	33.9	12.2	10.9
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	37.4	12.0	32.9	11.5	36.1	16.3	17.9
Parcel, U.S. Postal Service or courier	37.4	12.0	32.9	11.5	36.1	16.3	17.9
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	44.8

See footnote at end of table.

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 25, LOGS AND OTHER WOOD IN THE ROUGH							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	S
Truck	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	31.6
Private truck	S	S	S	S	S	S	31.6
Rail	S	S	S	S	S	S	31.6
Water	-	-	-	-	-	-	-
Shallow draft	-	-	-	-	-	-	-
Great Lakes	-	-	-	-	-	-	-
Deep draft	-	-	-	-	-	-	-
Air (includes truck and air)	-	-	-	-	-	-	-
Pipeline	-	-	-	-	S	S	S
Multiple modes	-	-	-	-	-	-	-
Parcel, U.S. Postal Service or courier	-	-	-	-	-	-	-
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	29.8
SCTG 26, WOOD PRODUCTS							
Total	34.9	-	49.9	-	49.3	-	14.7
Single modes	35.3	1.7	S	S	49.3	-	15.0
Truck	37.1	7.2	S	S	S	S	17.0
For-hire truck	43.6	9.1	S	S	S	S	10.2
Private truck	46.7	6.4	22.5	10.0	37.4	2.7	21.1
Rail	33.3	5.6	16.9	4.4	16.9	10.5	4.3
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
SCTG 27, PULP, NEWSPRINT, PAPER, AND PAPERBOARD							
Total	S	S	S	S	S	S	S
Single modes	S	S	S	S	S	S	40.4
Truck	S	S	S	S	S	S	40.4
For-hire truck	-	-	-	-	-	-	-
Private truck	S	S	S	S	S	S	40.4
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	30.0
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	30.0
Truck and rail	-	-	-	-	-	-	-
Truck and water	-	-	-	-	-	-	-
Rail and water	-	-	-	-	-	-	-
Other multiple modes	-	-	-	-	-	-	-
Other and unknown modes	S	S	S	S	S	S	38.4

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	39.1	—	40.6	—	40.7	—	S
Single modes	49.5	15.8	46.4	16.6	S	S	22.5
Truck	49.5	15.8	46.4	16.6	S	S	22.5
For-hire truck	S	S	S	S	S	S	31.6
Private truck	S	S	S	S	S	S	22.5
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	33.9	16.4	37.5	16.8	S	S	31.3
Parcel, U.S. Postal Service or courier	33.9	16.4	37.5	16.8	S	S	31.3
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	37.6
SCTG 29, PRINTED PRODUCTS							
Total	33.9	—	S	S	S	S	41.9
Single modes	S	S	S	S	S	S	S
Truck	S	S	S	S	S	S	23.7
For-hire truck	S	S	S	S	S	S	39.6
Private truck	48.8	10.3	48.9	13.8	S	S	26.6
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	47.4	17.6	S	S	46.2
Parcel, U.S. Postal Service or courier	S	S	47.4	17.6	S	S	46.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	44.6	7.6	S	S	S	S	S
SCTG 30, TEXTILES, LEATHER, AND ARTICLES OF TEXTILES OR LEATHER							
Total	47.2	—	36.5	—	39.8	—	12.8
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	S
Private truck	S	S	S	S	S	S	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	47.5	11.8	40.6	14.9	40.7	7.0	9.1
Parcel, U.S. Postal Service or courier	47.5	11.8	40.6	14.9	40.7	7.0	9.1
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	30.5

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 31, NONMETALLIC MINERAL PRODUCTS							
Total	26.1	—	32.5	—	12.2	—	45.5
Single modes	28.7	10.3	32.9	2.4	12.1	.7	S
Truck	31.9	11.1	36.6	12.8	17.2	11.8	S
For-hire truck	35.3	10.9	46.7	10.0	26.2	12.0	49.7
Private truck	S	S	S	S	S	S	39.4
Rail	41.5	4.7	41.3	7.4	41.7	9.8	26.1
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	37.7	.2	45.4	—	25.6
Parcel, U.S. Postal Service or courier	S	S	37.7	.2	45.4	—	25.6
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	39.3
SCTG 32, BASE METAL IN PRIMARY OR SEMIFINISHED FORMS AND IN FINISHED BASIC SHAPES							
Total	42.7	—	S	S	S	S	S
Single modes	48.8	11.8	S	S	S	S	37.8
Truck	48.8	11.8	S	S	S	S	37.8
For-hire truck	S	S	S	S	S	S	31.2
Private truck	41.3	10.9	S	S	S	S	23.4
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	27.2
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	27.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 33, ARTICLES OF BASE METAL							
Total	43.9	—	40.1	—	35.9	—	36.8
Single modes	48.6	6.6	41.3	4.3	35.9	3.1	S
Truck	S	S	43.3	5.2	32.1	7.1	S
For-hire truck	26.5	11.4	29.1	13.3	35.9	9.9	29.0
Private truck	S	S	S	S	S	S	36.2
Rail	S	S	S	S	S	S	29.8
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	37.0	3.9	38.4	.2	S	S	20.5
Parcel, U.S. Postal Service or courier	37.0	3.9	38.4	.2	S	S	20.5
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S

See footnote at end of table.

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

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

SCTG code, description, and mode of transportation	Value		Tons		Ton-miles		Average miles per shipment—coefficient of variation
	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	Coefficient of variation of number	Standard error of percentage	
SCTG 34, MACHINERY							
Total	20.1	—	22.8	—	17.2	—	22.0
Single modes	24.9	8.7	24.0	7.2	18.4	5.7	38.8
Truck	25.1	8.7	24.0	7.2	19.1	6.6	39.1
For-hire truck	37.3	3.0	S	S	33.1	6.8	20.1
Private truck	26.0	10.2	25.1	9.2	22.2	9.9	15.4
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	29.9
Pipeline	—	—	—	—	S	S	S
Multiple modes	40.7	5.6	40.9	1.8	44.2	5.5	10.7
Parcel, U.S. Postal Service or courier	40.7	5.6	40.9	1.8	44.2	5.5	10.7
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	42.6
SCTG 35, ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONENTS AND OFFICE EQUIPMENT							
Total	S	S	29.0	—	S	S	23.6
Single modes	20.0	19.4	36.4	10.2	31.1	14.3	S
Truck	21.5	18.2	37.4	10.5	29.4	13.5	S
For-hire truck	44.5	11.4	33.9	8.8	40.1	10.5	22.5
Private truck	34.5	14.2	40.9	13.0	36.5	13.5	43.8
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	20.8
Pipeline	S	S	S	S	S	S	S
Multiple modes	S	S	S	S	S	S	19.7
Parcel, U.S. Postal Service or courier	S	S	S	S	S	S	19.7
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	46.7	4.4	S	S	46.5	.3	37.5
SCTG 36, MOTORIZED AND OTHER VEHICLES (INCLUDING PARTS)							
Total	28.4	—	29.7	—	36.1	—	22.0
Single modes	43.5	11.2	42.3	11.5	46.0	12.3	38.5
Truck	43.5	11.2	42.3	11.5	46.6	12.3	26.3
For-hire truck	S	S	S	S	S	S	26.1
Private truck	46.5	11.1	45.6	11.2	49.6	11.8	30.0
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	30.0
Pipeline	—	—	—	—	S	S	S
Multiple modes	39.2	4.6	40.4	2.0	39.5	1.6	23.2
Parcel, U.S. Postal Service or courier	39.2	4.6	40.4	2.0	39.5	1.6	23.2
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	34.7

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	25.9
Single modes	S	S	S	S	S	S	31.7
Truck	S	S	S	S	S	S	40.9
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	40.9
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	31.6
Pipeline	—	—	—	—	S	S	S
Multiple modes	48.9	9.6	S	S	49.4	12.2	25.8
Parcel, U.S. Postal Service or courier	48.9	9.6	S	S	49.4	12.2	25.8
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	28.8
SCTG 38, PRECISION INSTRUMENTS AND APPARATUS							
Total	36.0	—	S	S	S	S	31.6
Single modes	49.8	11.5	S	S	S	S	28.1
Truck	49.8	11.5	S	S	S	S	28.1
For-hire truck	—	—	—	—	—	—	—
Private truck	49.8	11.5	S	S	S	S	28.1
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	43.6	11.4	49.2	19.5	S	S	19.0
Parcel, U.S. Postal Service or courier	43.6	11.4	49.2	19.5	S	S	19.0
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	S
SCTG 39, FURNITURE, MATTRESSES AND MATTRESS SUPPORTS, LAMPS, LIGHTING FITTINGS, AND ILLUMINATED SIGNS							
Total	S	S	S	S	S	S	25.6
Single modes	S	S	S	S	S	S	34.1
Truck	S	S	S	S	S	S	34.1
For-hire truck	—	—	—	—	—	—	—
Private truck	S	S	S	S	S	S	34.1
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	S	S	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	43.0

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 40, MISCELLANEOUS MANUFACTURED PRODUCTS							
Total	18.9	—	18.0	—	25.6	—	11.9
Single modes	36.2	10.2	23.7	9.4	26.6	10.6	S
Truck	35.8	9.7	23.6	9.4	26.4	10.5	S
For-hire truck	42.9	7.2	S	S	46.8	8.0	17.8
Private truck	42.4	9.4	25.8	12.5	34.9	12.2	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	S	S	S	S	S	S	26.1
Pipeline	—	—	—	—	S	S	S
Multiple modes	33.5	10.3	49.4	9.1	S	S	8.0
Parcel, U.S. Postal Service or courier	30.8	9.3	37.5	8.0	38.9	9.0	8.0
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	35.1
SCTG 41, WASTE AND SCRAP							
Total	S	S	S	S	S	S	30.5
Single modes	S	S	S	S	S	S	30.5
Truck	S	S	S	S	S	S	30.5
For-hire truck	S	S	S	S	S	S	31.6
Private truck	S	S	S	S	S	S	30.6
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 43, MIXED FREIGHT							
Total	27.1	—	S	S	S	S	S
Single modes	27.7	8.9	S	S	S	S	S
Truck	27.7	8.9	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	29.1
Private truck	31.4	9.9	34.2	17.6	S	S	S
Rail	—	—	—	—	—	—	—
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	26.3	9.7	S	S	S	S	41.6
Parcel, U.S. Postal Service or courier	29.4	10.0	28.6	11.0	38.3	17.2	42.2
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	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	38.1	—	S	S	S	S	46.5
Single modes	42.9	12.8	S	S	S	S	S
Truck	S	S	S	S	S	S	S
For-hire truck	S	S	S	S	S	S	38.7
Private truck	S	S	S	S	S	S	S
Rail	S	S	S	S	S	S	31.8
Water	—	—	—	—	—	—	—
Shallow draft	—	—	—	—	—	—	—
Great Lakes	—	—	—	—	—	—	—
Deep draft	—	—	—	—	—	—	—
Air (includes truck and air)	—	—	—	—	—	—	—
Pipeline	—	—	—	—	S	S	S
Multiple modes	S	S	S	S	43.3	14.8	36.4
Parcel, U.S. Postal Service or courier	S	S	S	S	43.3	14.8	36.4
Truck and rail	—	—	—	—	—	—	—
Truck and water	—	—	—	—	—	—	—
Rail and water	—	—	—	—	—	—	—
Other multiple modes	—	—	—	—	—	—	—
Other and unknown modes	S	S	S	S	S	S	31.6

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

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

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	9.5	—	15.2	—	21.5	—
NEW ENGLAND STATES						
Connecticut	S	S	S	S	S	S
Maine	S	S	S	S	S	S
Massachusetts	S	S	S	S	S	S
New Hampshire	43.7	—	S	S	S	S
Rhode Island	S	S	S	S	S	S
Vermont	S	S	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	24.0	—	21.9	—	21.7	—
New York	24.4	—	49.3	—	49.7	—
Pennsylvania	28.8	.3	41.9	.7	41.5	1.2
EAST NORTH CENTRAL STATES						
Illinois	37.1	1.5	46.4	3.1	45.8	3.2
Indiana	18.4	.3	32.6	1.1	32.4	1.4
Michigan	S	S	24.4	.6	24.4	.9
Ohio	28.7	.3	37.2	.8	37.1	1.1
Wisconsin	24.8	.3	21.6	1.2	21.5	1.3
WEST NORTH CENTRAL STATES						
Iowa	28.1	.4	31.6	.6	34.6	.6
Kansas	17.5	.4	25.7	1.3	24.6	1.5
Minnesota	20.5	.2	25.3	.7	25.1	.6
Missouri	14.1	.5	19.8	1.7	20.5	1.5
Nebraska	38.6	1.6	14.1	3.6	17.5	.7
North Dakota	23.2	—	28.4	—	33.6	—
South Dakota	31.0	.5	43.5	.3	S	S
SOUTH ATLANTIC STATES						
Delaware	S	S	S	S	S	S
District of Columbia	S	S	S	S	S	S
Florida	S	S	33.1	—	32.9	—
Georgia	37.3	.3	48.0	.8	48.0	1.3
Maryland	42.5	—	S	—	S	—
North Carolina	21.4	—	43.7	—	43.4	.1
South Carolina	S	S	S	S	S	S
Virginia	25.1	—	47.5	—	47.5	—
West Virginia	S	S	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	18.8	.2	28.0	1.0	27.9	1.5
Kentucky	38.9	.1	42.3	.6	43.1	.9
Mississippi	39.0	—	S	—	S	—
Tennessee	33.2	.2	32.4	.2	32.4	.4
WEST SOUTH CENTRAL STATES						
Arkansas	19.1	.2	23.9	.8	24.8	.9
Louisiana	S	S	S	S	S	S
Oklahoma	31.0	.6	46.7	1.2	47.6	1.1
Texas	17.5	.4	27.6	2.4	29.3	3.2
MOUNTAIN STATES						
Arizona	26.0	.1	38.4	—	39.3	—
Colorado	15.0	1.0	19.4	1.1	23.5	1.0
Idaho	38.2	.4	36.7	.1	42.0	—
Montana	18.2	.3	48.9	.3	43.0	.1
Nevada	24.9	.2	29.2	—	29.4	—
New Mexico	41.1	.2	S	—	S	—
Utah	35.7	.8	40.8	.4	S	—
Wyoming	9.4	3.9	27.3	5.0	33.8	1.1
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	11.5	.6	19.8	.1	20.0	.1
Hawaii	S	S	S	S	S	S
Oregon	31.1	.4	S	—	S	—
Washington	40.0	.3	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	16.6	—	31.0	—	34.3	—
NEW ENGLAND STATES						
Connecticut	48.2	—	S	S	S	S
Maine	S	S	S	S	S	S
Massachusetts	S	S	40.9	—	41.0	—
New Hampshire	S	S	S	S	S	S
Rhode Island	S	S	S	S	S	S
Vermont	44.6	—	S	S	S	S
MIDDLE ATLANTIC STATES						
New Jersey	32.3	—	44.6	—	48.0	—
New York	42.6	.1	S	S	S	S
Pennsylvania	36.7	.3	46.9	—	46.7	.4
EAST NORTH CENTRAL STATES						
Illinois	29.5	.8	44.8	.4	46.0	3.1
Indiana	S	S	39.5	—	41.1	—
Michigan	S	S	S	S	S	S
Ohio	44.4	1.2	S	S	S	S
Wisconsin	42.6	.2	S	S	S	S
WEST NORTH CENTRAL STATES						
Iowa	S	S	45.8	—	46.1	.7
Kansas	34.2	.2	S	S	S	S
Minnesota	30.7	.2	33.4	—	28.8	.3
Missouri	45.0	.5	S	S	S	S
Nebraska	27.4	.6	31.8	—	36.1	—
North Dakota	26.3	—	S	S	S	S
South Dakota	13.6	.3	20.7	.6	20.9	.9
SOUTH ATLANTIC STATES						
Delaware	S	S	S	S	S	S
District of Columbia	—	—	—	—	—	—
Florida	S	S	S	S	S	S
Georgia	37.5	.1	S	S	S	S
Maryland	S	S	S	S	S	S
North Carolina	S	S	S	S	S	S
South Carolina	S	S	S	S	S	S
Virginia	39.9	.1	S	S	S	S
West Virginia	48.3	—	S	S	S	S
EAST SOUTH CENTRAL STATES						
Alabama	S	S	S	S	S	S
Kentucky	S	S	42.1	—	41.7	—
Mississippi	S	S	S	S	S	S
Tennessee	41.9	.3	36.5	—	37.5	—
WEST SOUTH CENTRAL STATES						
Arkansas	39.4	.1	S	S	S	S
Louisiana	48.4	.1	48.5	—	48.6	.3
Oklahoma	S	S	S	S	S	S
Texas	36.9	.6	33.9	.2	33.0	1.2
MOUNTAIN STATES						
Arizona	31.6	—	44.6	—	45.7	—
Colorado	11.4	2.0	S	S	S	S
Idaho	28.8	.5	33.8	.4	S	S
Montana	15.9	.8	30.4	.6	43.0	1.4
Nevada	28.7	.2	34.4	.2	34.2	.7
New Mexico	42.2	.1	S	S	47.7	.2
Utah	18.0	1.4	37.1	2.7	39.3	4.5
Wyoming	9.4	3.7	27.3	3.8	33.8	6.0
PACIFIC STATES						
Alaska	S	S	S	S	S	S
California	22.6	.4	17.3	—	17.8	.3
Hawaii	S	S	S	S	S	S
Oregon	19.4	.1	37.9	—	38.1	.1
Washington	29.4	.2	33.8	—	33.9	.3

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

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

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

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

Mode of transportation	Value			Tons			Ton-miles			Average miles per shipment		
	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change	Coefficient of variation of number		Standard error of percent change
	2002	1997		2002	1997		2002	1997		2002	1997	
Total	9.5	10.3	18.5	15.2	19.3	35.9	21.5	22.1	47.0	20.3	S	S
Single modes	6.1	11.9	17.2	12.7	20.1	37.0	16.0	23.9	45.7	14.7	43.1	57.9
Truck	5.5	24.0	33.2	11.3	24.2	38.9	15.9	14.1	28.2	11.9	35.8	47.6
Rail	11.4	8.1	15.4	14.1	21.9	40.4	16.3	24.3	46.5	2.7	4.5	5.0
Water	-	-	-	-	-	-	-	-	-	-	-	-
Air (includes truck and air)	45.8	S	S	S	S	S	S	S	S	13.2	26.0	46.2
Pipeline	S	S	S	38.5	S	S	S	S	S	S	S	S
Multiple modes	45.4	26.0	86.5	S	27.2	S	S	26.6	S	12.2	S	S
Parcel, U.S. Postal Service or courier ..	S	32.1	S	28.8	S	S	34.2	33.2	58.4	12.3	S	S
Truck and rail	34.5	43.4	35.1	S	S	S	S	S	S	21.5	23.8	32.2
All other multiple modes	S	21.7	S	S	27.7	S	S	27.0	S	28.0	12.7	36.0
Other and unknown modes ...	22.7	37.2	44.2	S	S	S	35.9	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-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	9.5	10.3	18.5	15.2	19.3	35.9	21.5	22.1	47.0	20.3	S	S
01-05	Agricultural products and fish	43.2	34.9	114.7	48.7	S	S	48.0	43.2	50.6	S	S	S
06-09	Grains, alcohol, and tobacco products	19.4	31.1	40.4	19.2	37.2	40.3	25.7	25.5	19.0	S	S	S
10-14	Stones, nonmetallic minerals, and metallic ores	40.5	28.5	41.4	39.6	22.1	60.1	46.3	22.1	61.1	40.0	43.2	52.8
15-19	Coal and petroleum products	11.5	7.9	22.4	16.4	21.1	39.9	22.4	24.0	52.0	28.9	23.0	28.8
20-24	Basic chemicals, chemical, and pharmaceutical products	25.9	23.5	33.1	32.2	17.3	33.7	33.7	16.0	21.1	30.3	S	S
25-30	Logs, wood products, and textile and leather	27.5	S	S	48.4	34.2	67.5	48.0	21.0	70.3	20.7	S	S
31-34	Base metal and machinery ..	19.5	30.7	57.8	29.7	37.8	95.9	12.7	30.4	23.1	43.6	47.5	82.6
35-38	Electronic, motorized vehicles, and precision instruments	S	47.6	S	18.9	45.3	248.4	34.1	S	S	23.3	30.4	68.8
39-43	Furniture, mixed freight and misc. manufactured prod. ..	15.9	37.1	55.9	S	41.9	S	S	35.5	S	17.8	35.7	56.9
--	Commodity unknown	38.1	S	S	S	S	S	S	S	S	46.5	30.0	22.1

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

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

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.

