



0-4713-P2

**STATE-OF-THE-PRACTICE IN FREIGHT DATA: A
REVIEW OF AVAILABLE FREIGHT DATA IN THE U.S.**

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Project 0-4713: Development of Sources and Methods for Securing Truck Travel Data in Texas

FEBRUARY 2004

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<p>Project conducted in cooperation with the Federal Highway Administration and the Texas Department of Transportation.</p>	
<p>Abstract: State and regional transportation planning agencies are increasingly recognizing the need for policies and programs addressing freight issues to ensure an efficient and reliable freight transportation system. A major challenge, however, remains the lack of available freight data to ensure informed decisions. State Departments of Transportation seem to (a) rely on the limited data compiled and published by federal agencies for aggregate analysis, (b) obtain one of the private commercial sources of data related to freight movements, or (c) collect original data. The principal commercial data source currently is the Reebie TRANSEARCH database. The objective of this research product is to summarize the outcome of the research team's comprehensive review of available U.S. freight data sources – both public and commercial sources. The research team carefully reviewed the objectives, survey methods, assumptions, and limitations of each publicly available database, and the available documentation of commercial databases. In total, 31 databases were reviewed. This research product documents, in detail, the characteristics of the various databases, including sponsoring organization, performing organization, data collected, sampling method, survey method, quality control procedure, geographical coverage, frequency of updates, and the assumptions and limitations inherent to each data source. The contact details for the contact organization are also provided</p>	<p>Keywords: Freight data, freight database descriptions, freight sampling procedures, freight demand characteristics, freight data quality control procedures, freight database limitations</p> <hr/> <p>No. of Pages: 148</p>

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INTRODUCTION

Freight transportation is fundamental to any region's economic prosperity and quality of life. Intermodal and freight concerns have thus started to receive attention due to significant increases in freight flows in the wake of globalization, increasing congestion, and changes in the logistics systems of shippers to facilitate just-in-time production. Freight oriented policies, plans and programs have thus started to emerge in state transportation plans – especially since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991.

Although the economic development impacts of freight transport are seldom disputed, the challenge lies in disaggregating freight transportation demand to flows that can be assigned onto a state's transportation network. Disaggregated freight flows are necessary to:

- provide a clear picture of freight movements on a state's transportation system;
- determine the impact of freight on a state's road infrastructure – bridges and pavements – and the implications in terms of funding;
- evaluate strategies for improving freight mobility;
- forecast system performance;
- mitigate impacts of truck traffic on general mobility; and
- improve the safety performance of the road network.

The evaluation of current and future freight transportation capacity is thus critically contingent on the availability of accurate data and sound models to ensure informed decisions. Although freight demand models have started to emerge as tools to inform transportation policies, the development of these models has lagged behind that of passenger demand models. The most commonly cited challenge in the development of freight models is insufficient and inferior quality data.

The objective of this research product is to summarize the outcome of the research team's comprehensive review of available U.S. freight data sources – both public and commercial sources. The research team carefully reviewed the objectives, survey methods, assumptions, and limitations of each publicly available database, and the available documentation of commercial databases. In total, 31 databases were reviewed. This research product documents, in detail, the characteristics of the various databases, including sponsoring organization, performing organization, data collected, sampling method, survey method, quality control procedure, geographical coverage, frequency of updates, and the assumptions and limitations inherent to each data source. The contact details for the contact organization are also provided.

Based on this review of all the major freight data sources (*public and commercial*), the research team has identified those publicly available freight databases (*shipment- and transport-based*) that contains the variables required by the Texas Department of Transportation for its Statewide Analysis Model (SAM). The research

team will subsequently focus on extracting the relevant freight data (*commodity-origin-destination data distinguished by truck load and less-than-truckload*) from each identified data source. The data will be combined and entered into a single relational database that is compatible with SAM.

AIRPORT ACTIVITY STATISTICS OF CERTIFICATED ROUTE AIR CARRIERS

SPONSORING ORGANIZATION

- Federal Aviation Administration (FAA), U.S. Department of Transportation

AVAILABILITY

- Annual report available around August-September
- Monthly and quarterly versions
- International air carrier enplanement data not reported (*withheld*) for a 3-year period
- Summary tables available online at the following address:
 - http://www.bts.gov/publications/airport_activity_statistics_of_certificated_air_carriers/2000/index.html

DATABASE DESCRIPTION

Airport Activity Statistics of Certificated Route Air Carriers is developed by the U.S. Department of Transportation giving detailed enplanement statistics of *Large Certificated Air Carriers*. Large Certificated Air Carriers (LCACs) are defined as airline carriers having at least sixty seats or a payload capacity of more than 18,000 lbs. Airline enplanement statistics are reported only for the LCACs and accordingly, Small Certificated, Commuter Airlines, and Foreign-Flag Carriers are not included in the database.

DATA COLLECTION

Performing Organization

- Office of Airline Statistics (OAS), Bureau of Transportation Statistics (BTS), U.S. Department of Transportation

Methodology

- **Sources**
 - Large Certificated Air Carriers
- **Sample Selection and Size**
 - The sample of airline carriers required to file the Schedule T-3 reports is restricted to Large Certificated Air Carriers.

-
- All large certificated air carriers are required to file their monthly enplanement activity statistics to the Office of Airline Statistics (OAS), U.S. Department of Transportation.
 - Statistics for a total of 89 LCACs belonging to the carrier groups of *major carriers*, *national carriers*, *large regional carriers* and *medium regional carriers* are reported in the dataset.
 - **Procedure**
 - All LCACs are required by the USDOT's Office of Airline Statistics (OAS) to report their monthly enplanement activity statistics as specified in detail in the Code of Federal Regulations (CFR) – Title 14: Part 241.
 - These air carriers supply their monthly activity data in the form of Schedule T-3 reports in BTS Form 41, which has to be filed within the prescribed time period to the Office of Airline Statistics, a part of BTS at the USDOT.
 - **Freight Demand Characteristics**
 - *Commodity*
 - Not available
 - *Origin-Destination flows*
 - Enplanement airport only
 - *Routing*
 - Not available
 - *Shipment*
 - Enplanement tons reported for:
 - Freight (*Express and Non-Express*)
 - Mail (*Priority, Non-Priority and Foreign*)
 - *Transport*
 - Air
 - *Other*
 - Monthly/annual departures of carriers by:
 - Service type
 - *Scheduled/Non-Scheduled*
 - Equipment type

Quality Control Procedures

- Timely filing of Schedule T-3 reports within the prescribed time by LCACs is ensured by the U.S. Department of Transportation's Office of Airline Statistics and the Office of Aviation Enforcement and Proceedings (*Enforcement Office*)
- In the case of persistent delays in monthly filings by a particular air carrier, the Office of Airline Statistics and the Office of Aviation Enforcement and Proceedings warn the carrier and may even issue orders for the payment of penalties that are as high as \$200,000.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- National (*50 states and the District of Columbia*)

Frequency of Data Collection / Update

- Monthly, quarterly, and annual updates

Limitations of Data Source

- The database does not report deplanement statistics for LCACs for any airport.
- The database does not report in-transit shipment data since only cargo enplanement (*loading*) data are captured in the Schedule T-3 reports.
- For each individual airport, cargo enplanement and aircraft activity (departures) data are reported only for the LCACs. Because a significant portion of an airport's traffic is composed of Small Certificated and Commuter Airlines as well, the airport activity statistics in the database are not representative of the overall airborne enplanement traffic at the airport.

Contact Address

Federal Aviation Administration (FAA)
U.S. Department of Transportation
800 Independence Ave, SW
Washington, DC 20591
Tel: (202) 267-8032
Fax: (202) 267-9636
www.faa.gov



CARLOAD WAYBILL SAMPLE

SPONSORING ORGANIZATION

- The Surface Transportation Board

AVAILABILITY

- Master File (MF) not available to the public
- Public Use File (PUF) is developed annually from the Master File and is available on tape at the end of July each year
- PUF for 1988 to 1993 also available on CD-ROM, compiled by the BTS
- The waybill sample data can be accessed at the following website of the Surface Transportation Board:
 - http://www.stb.dot.gov/stb/industry/econ_waybill.html

DATABASE DESCRIPTION

The annual Carload Waybill Sample is developed by the Association of American Railroads (AAR) under contract with the Surface Transportation Board (STB) (previously the *Interstate Commerce Commission*). The annual database — maintained in a single ASCII coded data file — captures detailed information on total rail traffic, commodities, revenues, origin-destination flows, and routing information for U.S. railroad shipments.

DATA COLLECTION

Performing Organization

- Association of American Railroads (AAR)

Methodology

- **Sources**
 - Carload waybills submitted by U.S. railroads to the AAR
- **Sample Selection and Size**
 - Carload waybills are collected by the AAR from railroads that move:
 - at least 4,500 carloads per year over the last 3 years *or*
 - 5% or more of any state's total traffic

- The actual waybills filed by railroads are sampled on the following basis:
 - The number of carloads on the waybill
 - Larger sampling of railroads with larger number of carloads operating in a year
 - The mode of filing of the waybill
 - Larger sampling of Machine Readable Input (MRI) waybills compared to hard copy documents.
 - For example, waybills submitted in the MRI format and pertaining to more than 100 carloads have a higher probability of being selected compared to hard copy waybills.
- The carload waybill sample for each year contains over 350,000 records.

- **Procedure**

- The carload waybills are collected by the AAR under contract with the STB.
- As required by the government, freight railway companies satisfying minimum size criteria of at least 4,500 carload shipments in the past 3 years or more than 5% of the state's traffic have to submit carload waybill information.
- The carload waybills are submitted to the AAR in two formats:
 - Hard copy version (*Manual system*)
 - Machine Readable Input (MRI – *Computerized System*)
- From these waybill records, a stratified sample is selected by the AAR to compile the *Carload Waybill Sample* database. The sampling of the waybill records is performed on the basis discussed in the *sample selection and size* heading above.
- The traffic and revenue values collected for the sample are then converted to annual values by using the following expansion factor:

$$\text{Exact Expansion Factor} = \frac{\text{Population_count}}{\text{Sample_count}}$$

- **Freight Demand Characteristics**

- *Commodity*
 - 5-digit Standard Transportation Commodity Codes (STCC) in PUF

-
- *Origin/Destination flows*
 - *Business Economic Area (BEA)* codes of origin and destination of rail shipments
 - *Routing*
 - Public Use File
 - Interchange states
 - Master File
 - Railroad and station itinerary
 - *Shipment*
 - Tonnage
 - *Actual and billed tonnage*
 - Number of carloads
 - Date of shipment
 - Total revenue generated
 - Trailers and containers
 - *Transport*
 - Rail mode with some intermodal activity
 - *Other*
 - Short line miles (*Shortest rail distance between origin-destination*)
 - Number of interchanges
 - Rail carrier and equipment type

Quality Control Procedures

- The Machine Readable Input (MRI) format for filing carload waybills reduces the non-sampling errors in data reporting and facilitates easier handling and management of large fields of data for each record.
- The sampling rate for MRI waybills are higher than for hard copy documents, which also ensures that data processing for the development of the *Carload Waybill Sample* is faster and more efficient.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- National

Frequency of Data Collection and Update

- The Public Use File (PUF), available on tape, is developed annually and is available by the end of July each year.

Limitations of Data Source

- Due to the minimum threshold level (minimum number of carloads) considered in the reporting of carload waybills, some Class II and Class III railroads are often not covered in the *Carload Waybill Sample*. This may lead to sampling errors in the rail shipment data reported.
- Annual statistics for railroad shipments in terms of number of carloads, shipment tonnage, and revenue of railroads for each sampling category are computed using an expansion factor defined by the ratio of the population to the sample size. The expanded values obtained might not be accurate for the following reasons:
 - Railroads are sampled based on the number of carloads and other statistics are not considered.
 - Under each sampled category (for example, MRI waybills with more than 100 annual carloads), there will be variation in for example revenues and tonnage across railroads which cannot be estimated accurately using the expansion factor method.
- The *Carload Waybill Sample* does not report BEA regions of origins and destinations for commodity shipments in the following cases:
 - BEA regions having two or less freight stations
 - BEA regions that have less than one more freight station than the number of railroads in the BEA region
- The *Carload Waybill Sample* often overestimates the revenues of railroads undertaking contract movements due to the expansion factor method of computation of annual revenues.

Contact Address

Surface Transportation Board
1925 K Street, N.W.
Washington, DC 20423-0001
Tel: (202) 565-1674
<http://www.stb.dot.gov/>

COMMODITY FLOW SURVEY (CFS)

SPONSORING ORGANIZATION

- Bureau of Transportation Statistics (BTS), U.S. Department of Transportation (U.S. DOT)
- Bureau of the Census, U.S. Department of Commerce

DATA AVAILABILITY

- Publicly available
- CFS data available in PDF, HTML and Excel formats and on CD-ROM from the Bureau of Transportation Statistics (BTS) and the U.S. Bureau of the Census.
- CFS data can be accessed at the following website of the Bureau of Transportation Statistics:
 - <http://www.bts.gov/ntda/cfs/prod.html>

DATABASE DESCRIPTION

The Commodity Flow Survey (CFS) is conducted by the Census Bureau as a part of its quinquennial Economic Census to capture data on the flow of goods and materials by mode of transportation. Freight transportation characteristics have been estimated in the past in the Commodity Transportation Surveys conducted from 1963 through 1977, but the CFS—with major improvements in methodology, sample size, and scope—is designed to provide more comprehensive information on the movement of freight across the U.S. transportation network.

The Commodity Flow Survey (CFS) captures shipment data from the following types of establishments:

- manufacturing,
- mining,
- wholesale, and
- selected retail and service establishments (auxiliary establishments).

The shipment data gathered are used to estimate distance distributions and origin-destination flows by commodity type, mode, shipment size, and value. The CFS provides the only source of origin-destination patterns for freight transport by *for-hire* and *private trucks* across the United States.

The shipment data collected from the CFS are used by public policy analysts and transportation planners to assess the demand on the existing transportation systems and for decision making with regard to critical investments in transportation facilities and services for the future. The CFS shipment data also help planners address the issues of safety, energy consumption, and environmental impact issues.

DATA COLLECTION

Performing Organization

- Census Bureau, U.S. Department of Commerce
- Oak Ridge National Laboratory (ORNL) – Center for Transportation Analysis

Methodology

- **Sources**
 - Sample of establishments selected from the Standard Statistical Establishment List (SSEL) to provide shipment data
 - “An establishment is defined as a single physical location where business transactions take place”.
 - In particular, establishments classified as mining, manufacturing, wholesale, and selected retail industries are chosen for the survey.

- **Sample Selection and Size**

Sample selection for the CFS is based on a three-stage design process:

- **First stage: Sampling of establishments from the SSEL:**
 - For example, in the 2002 CFS, the sample consisted of around 50,000 establishments chosen from a population of close to 760,000 in-scope establishments.
- **Second Stage: Selection of reporting periods in each survey year:**
 - One- or two-week reporting period for each quarterly survey
 - For example, in the 1997 and 2002 CFS, one-week reporting periods during each of the calendar quarters were employed.
- **Third Stage: Sampling of shipments for each reporting period**
 - 40 or fewer shipments per week => *No sampling required*
 - More than 40 shipments per week => *Systematic sampling*
 - $[20 \leq \text{shipment sample} \leq 40]$ based on number of shipments per week

- **Procedure**

- **Questionnaires**

Each establishment selected in the CFS is mailed a questionnaire for each of its reporting weeks. Two versions of the questionnaire are employed to collect data from the sampled establishments:

- *CFS-1000*
- *CFS-2000*—includes additional information on transportation equipment and access to shipping facilities

- **Freight Demand Characteristics**

- *Commodity*

- Standard Transportation Commodity Classification (STCC) code for the 1993 CFS (*developed by the Association of American Railroads*)
- 5-digit Standard Classification of Transported Goods (SCTG) for the 1997 and 2002 CFS
- Hazardous materials (*Hazmat UN/NA codes*)

- *Origin/Destination Characteristics*

- State
- National Transportation Analysis Regions (NTARs)
- Foreign country for exports

- *Routing*

- Port of exit for exports

- *Shipment*

- Weight
- Value
- Containerized shipments

- *Mode of Transport*

- Air, private and for-hire trucks, rail, inland waterway, shallow and deep draft vessels, pipeline, surface/air parcel

- *Other*

- On- and off-site facility type
- Equipment use by type
- Responsibility for choice of mode

Quality Control Procedures

- **Reducing sampling variability in establishment selection**

All the establishments in the population cannot be surveyed due to time and cost considerations. Since the CFS is carried out on a sample of establishments, the estimates of freight characteristics for the population are subject to variance depending on the sample size. To reduce the variance of estimation, establishments are sampled on the basis of a *certainty/non-certainty* design approach. Certainty establishments have a selection probability of 1.0 for survey while non-certainty establishments are further stratified based on their measure of size and are sampled to meet the constraint on the coefficient of variation.

- **Reducing sampling variability in shipment size selection**

Similar to the sampling procedure for establishments, shipments are divided into *certainty* and *non-certainty* shipments based on the relative value or weight of each shipment in comparison to the rest of the reported shipments. Certainty shipments are classified as those that have a larger relative value or weight compared to other shipments and for which, the survey is able to gather all the information for the entire reporting week.

To arrive at an estimate of an establishment's total shipments in a given year, the following weights are applied:

- Shipment weight, shipment nonresponse weight, quarter weight and quarter non response weight
- Establishment level adjustment weight
- Establishment weight = $\frac{1}{P[E_i \in Sample]}$, where $P[E_i \in Sample]$ is the probability of selecting establishment i (E_i) in the sample based on the measure of size of the establishment. For certainty establishments, $P[E_i \in Sample]$ is equal to 1.0 because they are surely included in the survey sample. For non-certainty establishments, $P[E_i \in Sample]$ depends on the size of the establishments and has a higher value for larger size establishments.
- SIC-level adjustment weight

Costs of Data Collection

The Federal Highway Administration (FHWA) initiated the funding for the CFS in fiscal year 1992. For the initial work on the 1993 CFS, the FHWA transferred \$6 million to Census and \$0.6 million to Oak Ridge National Laboratory (ORNL) for the freight mileage calculations. The balance was paid by the Bureau of Transportation Statistics (BTS) from its Intermodal Surface Transportation Efficiency Act (ISTEA) budget authorizations. The total costs incurred in the 1993 CFS equaled \$12.6 million from the

U.S. Department of Transportation (USDOT) and \$3 million from the Bureau of the Census, U.S. Department of Commerce.

The BTS was established by the ISTEA in 1991 and it now assumes responsibility for the design, implementation and management of the CFS. The ISTEA budget regulations provide the funding to carry out the CFS.

Geographical Coverage

The geographical coverage of the CFS includes:

- United States Census Divisions and Regions,
- individual states in the U.S.,
- the top 50 metropolitan areas (MA), and the
- remainder of state categories.

Frequency of Data Collection/Update

The CFS was first conducted in 1993 as a continuation of the freight data collection surveys conducted between 1963 and 1977. Starting with the year 1997, the survey is being conducted quinquennially as a regular part of the 5-year Economic Census.

Limitations of the Commodity Flow Survey (CFS)

- Shipments from one foreign location to another (e.g., Mexico to Canada) passing through on the U.S. transportation network, are not included in the CFS. Consequently, the demand on the transportation system due to these freight flows is not considered in the CFS.
- Mileage of shipments moving outside the U.S., having origin and destination in the U.S., are not computed in the CFS. Accordingly, the shipment mileages computed are limited to movements on the U.S. transportation network and do not consider the entire flow trajectory of the shipment transport, which may be essential for planning issues related to energy consumption, safety, and environment.
- High respondent burden associated with the CFS reporting process needs to be minimized to achieve maximum response from establishments.

Contact Addresses

U.S. Department of Transportation
Bureau of Transportation Statistics
400 7th Street, SW • Room 3103 • Washington, DC 20590
L'Enfant Plaza Metrorail Station (7th and D Streets)
800-853-1351
www.bts.gov

U.S. Department of Commerce
Bureau of the Census
Services Division
Commodity Flow Survey Branch
(301) 457-2108
<http://www.census.gov/>

DIRECTORY OF U.S. IMPORTERS/EXPORTERS

SPONSORING ORGANIZATION

- Commonwealth Business Media, Inc.

AVAILABILITY

- Available for purchase in the form of annual directories, CD-ROMs, and diskette extracts
- Information on purchasing the data is available on the following website:
 - <http://www.cbizmedia.com/prodserv/products/?pub=DEI>

DATA SOURCE DESCRIPTION

The Directory of U.S. Importers/Exporters is a commercial database developed annually by the Commonwealth Business Media, Inc. The database contains comprehensive information on the market characteristics of U.S. importers and exporters.

The database provides the following data concerning U.S. importers and exporters:

- Address of location
- Commodity classification
- Foreign country of trading
- Modes of transportation
- Shipment characteristics (annual)
 - *Value*
 - *Weight*
 - *Shipping frequency*

DATA COLLECTION

Performing Organization

- Commonwealth Business Media, Inc.

Methodology

- **Sources**
 - Proprietary list of companies involved in foreign trade
 - Company information from PIERS import and export activity statistics

- **Sample Selection and Size**

- *Sampling for questionnaire surveys:*
 - Companies involved in substantial foreign trade activity are sampled.
 - Companies in the current database of importers and exporters are selected.
 - Companies included in prospective directory listings after U.S. Postal Service (USPS) updates are also selected.
- Some of the statistics reported in the PIERS databases on U.S. importers and exporters are developed from trade activity surveys conducted at U.S. *ports of entry* and *exportation*. These statistics are limited to importers/exporters using the waterborne mode of transportation.
- The Directory of U.S. Importers/Exporters databases provide active confirmed leads for over 60,000 U.S. companies involved in significant foreign trade activity.

- **Procedure**

- U.S. companies engaged in significant trade with foreign countries are selected to be surveyed:
 - Letters and questionnaires are mailed to these sampled companies to gather information on their *key personnel, location address, commodities traded, foreign country of trade, employees, value of shipments, and modes of transportation* utilized.
- The list of importers and exporters included in the Directory of U.S. Importers/Exporters database is updated using the importer and exporter listings from the PIERS database.

- **Freight Demand Characteristics**

- *Commodity*
 - 10-digit HS commodity codes
- *Origin/Destination flows*
 - Address of location of Importer/Exporter
 - Foreign country of origin/destination of shipments
- *Routing*
 - Port of entry or exit
- *Shipment*
 - Value
 - Weight

-
- Annual number of shipments
 - *Transport*
 - All modes
 - *Other*
 - Information on company's business (Standard Industrial Classification—SIC), number of employees, bank, broker, and freight forwarder are recorded.
 - Information on customs, foreign consulates, embassies, and international banks are also provided.

Quality Control Procedures

- To reduce the sampling errors in the surveys of companies, the list of companies in the directories are updated frequently with inputs from the United States Postal Service (USPS).
- Non-sampling errors in importer/exporter information are minimized by constant follow-ups with nonrespondents to ensure comprehensive data reporting.

Geographical Coverage

The Directory of U.S. Importers/Exporters database contains comprehensive information on importers and exporters from the fifty states and Puerto Rico.

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- The database may exclude information on importers and exporters that use air or surface modes exclusively.
- Since the database only provides the address of the exporter which is not necessarily the same as the point of origin of the commodity, information on the production origin of commodities cannot be inferred from the database.

Contact Address

Commonwealth Business Media, Headquarters
400 Windsor Corporate Center
50 Millstone Road, Suite 200
East Windsor, NJ 08520-1415
Tel: 800-221-5488
<http://www.cbizmedia.com/>



EXPORTS FROM MANUFACTURING ESTABLISHMENTS

SPONSORING ORGANIZATION

- Bureau of the Census, U.S. Department of Commerce

AVAILABILITY

- Annual report issued within 3 years from end of survey period
- Exports from manufacturing establishments data for 1997 and 2000 can be accessed at the following address:
 - <http://www.census.gov/mcd/exports/>

DATABASE DESCRIPTION

The Exports from Manufacturing Establishments database is developed by the U.S. Bureau of the Census (U.S. Department of Commerce) on an annual basis. This database is a detailed source of information on the value of direct and indirect exports and export-related employment statistics of U.S. manufacturing establishments. Direct Exports pertain to goods manufactured in the U.S. and exported directly for consumption to foreign countries. Indirect Exports relate to those goods and services that are required for the manufacture of export goods.

The database provides estimates for exports (*direct* and *indirect*) and related employment in the manufacturing sector for the 50 U.S. states and the District of Columbia. Employment estimates for auxiliary nonmanufacturing industries engaged in the transport of export goods from the production area to the port of exportation are also included in the database.

DATA COLLECTION

Performing Organization

- U.S. Bureau of the Census

Methodology

- **Sources**
 - Annual Survey of Manufacturers (ASM)
 - U.S. Exports of Merchandise database
 - Bureau of Economic Analysis (BEA) I/O accounts of U.S. Economy

- **Sample Selection and Size**

- The Annual Survey of Manufacturers (ASM) is conducted by the U.S. Census Bureau annually in the 4 years between the quinquennial Economic Census for years ending in “2” and “7”.
 - Approximately 55,000 establishments are surveyed in the ASM from a population of 350,000 manufacturing establishments.
 - *Certainty sample size*: Approximately 25,000 large establishments
 - *Non-certainty sample size*: Approximately 30,000 other establishments
- Nonemployers are considered *Out-of-Scope* of the ASM.
- Export shipment statistics are also used from the U.S. Exports of Merchandise database to adjust for discrepancies in the reporting of exports by manufacturing establishments in the ASM.
 - The U.S. Exports of Merchandise on CD-ROM database is developed by the Census Bureau from the *Shipper’s Export Declarations* (SEDs). In this data collection process, low-value export shipments less than \$2,501 are not reported.
 - The U.S. Exports of Merchandise database does not report exports from Puerto Rico and the U.S. Virgin Islands.
 - Only domestic manufactured exports are reported and re-exports are not included.

- **Procedure**

- Exports from manufacturing establishments are gathered from information reported in the ASM.
 - The values of export shipments reported in the ASM are the *free-on-board (f.o.b.)* plant values of exports.
- These exports are then allocated to an industry and state of the manufacturer for tabulation based on 3-digit *North American Industry Classification System (NAICS)* codes and the state of production of the export shipment.
- Many of the manufacturers participating in the ASM do not know the actual final destination of the manufactured products once they are transported from the plant. Consequently, the export shipment statistics reported by many of these manufacturing establishments may not be the actual export values.

-
- To address the above discrepancies, the export statistics reported by manufacturers are compared with the data presented in the U.S. Exports of Merchandise on CD-ROM database developed by the Census Bureau.
 - The export shipment values reported in the U.S. Exports of Merchandise on CD-ROM database from the *Shipper's Export Declarations* are the *free-alongside-ship (f.a.s.)* values. To compare the latter to the export shipment values reported in the ASM, freight and wholesale margins are subtracted from the *f.a.s.* values to get the *f.o.b.* plant value of shipments.
 - Differences in the export values between the U.S. Exports of Merchandise and the ASM reports are then allocated to industries and states and added to the reported data to obtain estimates of total *f.o.b.* plant values of Direct Exports by 3-digit NAICS codes for each state and the District of Columbia.
 - Direct Exports–related employment is calculated from the total employment data reported by each industry in the ASM. Employment related to Direct Exports for an industry was computed by multiplying the total employment in the industry in that state by the ratio of the total *f.o.b.* value of export shipments from the industry in that state and *f.o.b.* value of total shipments of the industry in that state.
 - Indirect Exports for each industry are calculated from the Bureau of Economic Analysis (BEA) Input/Output (I/O) accounts of the U.S. Economy. The BEA I/O accounts estimate the value of resources (*goods and services*) required to produce a unit of output. These resources are referred to as the Indirect Exports for the industry.
 - By entering the value of Direct Exports for each industry into the BEA I/O accounts, the value of resources required to produce the Direct Exports for that industry can be estimated.
 - BEA I/O tables for the U.S. can be obtained from the *Industry Economic Accounts* page of the Bureau of Economic Analysis, USDOC website. The website can be accessed at <http://www.bea.doc.gov/bea/dn2/i-o.htm>
 - Employment associated with the Indirect Exports is estimated using the same procedure as to estimate Direct Exports–related employment.
 - Employment in auxiliary nonmanufacturing industries is estimated using different I/O tables, but the procedure used to estimate employment is similar to the Direct Exports–related employment.
 - Detailed information on the procedures to estimate Direct and Indirect Exports and employment statistics can be obtained at:
 - <http://www.census.gov/mcd/>

- **Freight Demand Characteristics**

- *Commodity*
 - 3-digit North American Industry Classification System (NAICS) codes
 - For example, NAICS code 311 for *food manufacturing*
- *Origin-Destination*
 - State of production
- *Routing*
 - Not available
- *Shipment*
 - *Free-on-board (f.o.b.)* shipment value for Direct and Indirect Exports
- *Transport*
 - All modes
- *Other*
 - Employment statistics for Direct and Indirect Exports

Quality Control Procedures

- Information captured in the ASM is compared with the export information reported in the U.S. Exports of Merchandise database. This comparison ensures that any unreported exports can be allocated to industries and states to improve the accuracy of estimates of exports for each state-industry combination.
- To account for differences in the reporting of export shipment values in the ASM and the *Shipper's Export Declarations*, the *f.o.b.* plant value of exports was used as a common basis for comparison. The *f.a.s.* values reported in the SEDs are converted to *f.o.b.* values by subtracting the wholesale and freight margins from the *f.a.s.* value of shipments.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- All 50 states and the District of Columbia

Frequency of Data Collection/Update

- Annual

Limitations of Data Source

- The data contained in the Exports from Manufacturing Industries database may be subject to error because of the many adjustments and conversions that have to be performed during data integration and estimate computation.
 - For example, export statistics in the U.S. Exports of Merchandise on CD-ROM are reported using the Harmonized System (HS) classification while the ASM uses the NAICS codes. To compare these databases, the HS codes have to be converted to NAICS codes, which can potentially lead to errors in the estimates.
- No method exists to test the reliability of the estimates for the unreported export shipment values. These estimates may be reliable for some industries but may provide erroneous results if the basic assumptions applied in the procedure to compute unreported exports are not applicable to an industry.

Contact Addresses

U.S. Department of Commerce
Bureau of the Census
4700 Silver Hill Road
Washington, DC 20233-0001
www.census.gov

Mr. Richard Preuss
Assistant Division Chief
U.S. Bureau of the Census
Tel: (301) 457-2311
Fax: (301) 457-4615



FREIGHT COMMODITY STATISTICS (FCS)

SPONSORING ORGANIZATION

- The Association of American Railroads (AAR)

AVAILABILITY

- Publications of Freight Commodity Statistics are available approximately 5 months after the end of quarterly period.
- Available for purchase at \$80 per annual publication
 - <http://www.aar.org/pubstores/listItems.aspx>

DATABASE DESCRIPTION

The Freight Commodity Statistics (FCS) database is developed by the Association of American Railroads (AAR) on a quarterly and annual basis. The FCS database contains detailed shipment statistics by up to 5-digit Standard Transportation Commodity Codes (STCC) by Class I railroads (*railroads with minimum operating revenue of \$261.9 million*) in terms of the number of carloads, shipment tonnage, and the gross freight revenue.

The FCS database reports the commodity shipment statistics for the U.S. and for the Eastern and Western districts.

DATA COLLECTION

Performing Organization

- The Association of American Railroads (AAR)

Methodology

- **Sources**
 - Quarterly and annual commodity statistics reports filed with the Surface Transportation Board (STB) by Class I railroads.
- **Sample Selection and Size**
 - Commodity statistics are reported only by Class I railroads to the STB. Class II and Class III railroads, accounting for 9% of the total railroad revenue, are not reporting their statistics.

-
- Since the FCS database is developed from the commodity statistics reported by Class I railroads to the STB, there is no sampling procedure involved in the development of the database.
 - The following Class I railroads report their commodity statistics to the STB:
 - *Eastern District*
 - CSX Transportation
 - Canadian National Railways (U.S. Operations)
 - Illinois Central Railroad
 - Norfolk Southern Corporation
 - *Western District*
 - Burlington Northern and Santa Fe Railway
 - CP Rail System (U.S. Operations)
 - Kansas City Southern Railway
 - Union Pacific Railroad Company
 - **Procedure**
 - Class I railroads report their quarterly and annual commodity statistics to the STB (*formerly the Interstate Commerce Commission*), a requirement since 1964.
 - The AAR collects these commodity statistics and compiles the *Freight Commodity Statistics* database.
 - The commodity statistics for the U.S. are computed by summing the quarterly and annual carloads, tonnage, and revenue data for all the Class I railroads.
 - The commodity statistics for the Eastern and Western districts are computed by adding the quarterly and annual carloads, tonnage, and revenue data for the railroads having their corporate headquarters located in the Eastern and Western districts, respectively.
 - **Freight Demand Characteristics**
 - *Commodity*
 - 2-, 3-, 4-, and 5-digit Standard Transportation Commodity Codes (STCC)
 - Summary “T” codes for each STCC level of detail
 - *Origin-Destination*
 - Not available

-
- *Routing*
 - Not available
 - *Shipment*
 - Number of carloads and tonnage for originating, terminating, and total freight:
 - U.S., Eastern and Western districts
 - *Transportation*
 - Rail
 - Intermodal (STCC 46) detail also reported
 - *Other*
 - Total freight revenue for each STCC category

Quality Control Procedures

- To minimize the errors in reporting commodity shipment statistics for each district, freight movements are divided as follows:
 - *Freight originated and terminated*
 - *Freight originated and delivered to another railroad*
 - *Freight received and terminated*
 - *Freight received and delivered to another railroad*
- Less-than-carload shipments reported by railroads as STCC 47 have been converted to STCC 46 in the FCS database because all the less-than-carload shipments are intermodal (*based on a survey of U.S. railroads*). Consequently, reporting these shipments as STCC 47 would be inaccurate.
- The freight statistics are reported in the database at the 2-, 3-, 4- and 5-digit STCC level. To facilitate error checking and validation, summary statistics are calculated for each level of detail using a T code representation. For example, a 2-digit code with a T contains the summary statistics of all subsequent 3-digit codes starting with the same 2 digits as the 2-digit code.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- U.S.
- Eastern and Western districts

Frequency of Data Collection and Update

- Quarterly and Annual

Limitations of Data Source

- The FCS database does not report commodity shipment statistics for Class II and Class III railroads, although these railroads only account for approximately 9% of the total railroad shipment revenue. By omitting these carload and tonnage statistics erroneous results are possible, particularly for *low revenue generating commodities*.
- Commodity shipment statistics for Eastern and Western districts are computed based on the location of the railroad corporate headquarters. But the location district of the railroad corporate headquarters may not always represent the actual region of origin or destination of a shipment.
- Similarly, the database may not include shipment statistics for a district through which a shipment moves if the railroad does not have its headquarters located in that district.
- No data on the origin-destination or the routing for each STCC commodity code are available from the database.

Contact Address

The Association of American Railroads
50 F Street NW
Washington, DC 20001-1564
Tel: (202) 639-2100
<http://www.aar.org/>

FREIGHT TRANSPORTATION AND LOGISTICS SERVICE (FTLS)

SPONSORING ORGANIZATION

- DRI / McGraw-Hill

AVAILABILITY

- Available for purchase
 - *Printed documents*
 - *Online electronic formats*

DATA SOURCE DESCRIPTION

Freight Transportation and Logistics Service (FTLS) is a proprietary database developed by DRI/McGraw-Hill that reports historical and forecast data of spatial distribution of commodity flows by mode of transportation. The database also provides valuable information on operating costs of shipments transported, and the rates and demand for transportation equipment. The FTLS database is available in both printed and online documented formats.

DATA COLLECTION

Performing Organization

- DRI/McGraw-Hill

Methodology

- **Sources**
 - Proprietary
- **Sample size**
 - Not available (*proprietary information*)
- **Procedure**
 - Not available

- **Freight Demand Characteristics**

- *Commodity*
 - Standard Transportation Commodity Code (STCC) classification
- *Origin-Destination flows*
 - Regional detail reported for rail mode only
- *Routing*
 - Not available
- *Shipment characteristics*
 - Cargo tonnage by mode of transportation
- *Transport characteristics*
 - Barge, rail, and truck modes
- *Other*
 - Equipment volumes
 - *Mode*
 - *Type of equipment*
 - Shipment cost
 - Rate profiles

Quality Control Procedures

- Not available

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- U.S. national coverage

Frequency of Data Collection/Update

- Not available

Limitations of FTLS

- The FTLS database does not provide origin-destination or routing information for the truck mode. Origin-destination truck traffic routing data is imperative for state

and metropolitan planning organizations to forecast truck travel demand on the existing transportation network.

- Since the data source is proprietary, it is impossible to verify the reliability of the statistics reported in the database.

Contact Address

Ms. Jill Thompson
DRI/McGraw-Hill
24 Hartwell Avenue
Lexington, MA 02173
Tel: (617) 863-5100
Fax: (617) 860-6463

<http://www.dri.mcgraw-hill.com>

(Website currently unavailable)



FRESH FRUIT AND VEGETABLE SHIPMENTS BY COMMODITIES, STATES, AND MONTHS

SPONSORING ORGANIZATION

- U.S. Department of Agriculture

AVAILABILITY

- Annual report available in March of next year
- The data for 1999 to 2003 can be accessed at the following address:
 - <http://www.ams.usda.gov/fv/mncs/fvannual.htm>

DATABASE DESCRIPTION

The Fresh Fruit and Vegetable Shipments by Commodities, States, and Months database is developed by the U.S. Department of Agriculture (USDA). The database captures detailed information on the seasonal variations in domestic (intra- and inter-state), export, and import tonnages of fresh fruits and vegetables in the U.S. The shipment tonnage data are reported in terms of 100,000 lbs units.

DATA COLLECTION

Performing Organization

- U.S. Department of Agriculture
 - Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch

Methodology

- **Sources**
 - Federal Marketing Order Administrative Committees
 - Federal State Inspection Service (FSIS)
 - Shippers
 - Transportation Agencies
- **Sample Selection and Size**
 - The database reports domestic shipment data for all rail-refrigerated and piggyback shipments.

-
-
- Number of records of rail-refrigerated and piggyback domestic shipments represented in the database for each time period (*monthly* and *annual*) is not available.
 - Available truck, air, and boat shipment data are reported in the database.
 - No information on the available shipment data for truck, air and boat modes.
 - The truck shipment data for the states of Florida and Arizona are limited to only interstate shipments.
 - Details on the sample size of shippers surveyed at shipping locations are not available.
 - Import data from foreign countries, except Mexico, are collected from the U.S. Department of Commerce. This data pertains to the sample of import shipments (*value greater than \$1,501*) that are reported in the U.S. Customs Entry Summary Form 7501.

- **Procedure**

- Shipment data for rail and piggyback shipments of fresh fruits and vegetables are collected by the U.S. Department of Agriculture from the shipment data reported by rail carriers to the Surface Transportation Board in the line-haul revenue waybills.
- Domestic (*inter- and intra-state movements*) truck, air, and boat shipments data are collected by various agencies in each state. Statistics on the shipments of fresh fruits and vegetables by these modes are collected from the following sources:
 - Federal marketing order administrative committees
 - Data from the Federal-State Inspection Service (FSIS)
 - State transportation agencies
- Export shipment statistics for fresh fruits and vegetables are collected from the Department of Commerce.
- Import shipment statistics for fresh fruits and vegetables from all countries, except Mexico, are similarly collected from the import statistics reported by the U.S. Bureau of the Census.
- Import shipments from Mexico in terms of cross-border truck movements are collected by the *Animal and Plant Health Inspection Service* of the U.S. Department of Agriculture (USDA).

- **Freight Demand Characteristics**

- *Commodity*
 - Individual fruits and vegetables

-
- Grouping of minor commodities and mixed-load shipments
 - Domestic and export shipments listed separately
 - *Origin-destination*
 - Origin of shipments
 - State of origin
 - Foreign country of origin for imports
 - Domestic or export destination group
 - *Routing*
 - Not available
 - *Shipment*
 - Weight
 - Month
 - Year
 - *Transport*
 - Mode of transport for domestic shipments
 - Rail
 - *Refrigerated railcars*
 - Truck
 - Piggyback
 - *Trailer-on-flatcar*
 - *Container-on-flatcar*
 - Air
 - Water
 - Total of all modes

Quality Control Procedures

- The shipment statistics for fresh fruits and vegetables included in the database are gathered primarily from agencies other than the U.S. Department of Agriculture, such as the U.S. Bureau of the Census, federal marketing order administrative committees, Federal State Inspection Service, and the state transportation agencies. Consequently, the quality of the data is largely a function of the accuracy of the data reported by the above sources.
- Separate quality control procedures adopted by the U.S. Department of Agriculture in their surveys of shippers of domestic shipments or in the data processing stages are, however, not available.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Domestic and export shipment statistics reported for the 50 states and the District of Columbia
- Import statistics reported for all foreign countries having trade partnership with the U.S.

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- Because the database is compiled from external fresh fruit and vegetable shipment data sources, it is not possible to verify the reliability of the statistics reported.
- Because the data collection procedure is done separately for each mode of transport, aggregation of the data is problematic and can give rise to erroneous results, particularly in the case of intermodal shipments.
- The coverage of fresh fruit and vegetable shipments by multiple modes of transport is inadequate.
- Because shipment data for truck, air, and boats are unavailable for the entire population, the database does not represent total movements of fresh fruits and vegetables across the U.S.

Contact address

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U.S. Department of Agriculture
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Fax: (202) 720-7502
<http://www.usda.gov/>

GRAIN TRANSPORTATION REPORT

SPONSORING ORGANIZATION

- U.S. Department of Agriculture (USDA)

AVAILABILITY

- Free weekly reports available to subscribers by mail or e-mail
- Grain transportation data can be accessed at the following address:
 - <http://www.ams.usda.gov/tmdtsb/grain/>

DATABASE DESCRIPTION

The Grain Transportation Report, developed by the U.S. Department of Agriculture, reports on current and several prior weekly grain transportation activities in the U.S.

Tabular summaries are available for total U.S. rail carloads by Class I railroads (*U.S. line-haul railroads with operating income in excess of \$272.0 million*), volumes of grain shipments inspected for exports, carloads of rail shipments delivered to ports by coast, barge movements of grain commodities based on river lock data, vessel movements at ports by coast, average price of commodities, and the freight rates for ship charters.

DATA COLLECTION

Performing Organization

- Agricultural Marketing Service, U.S. Department of Agriculture

Methodology

- Sources
 - Shippers
 - Association of American Railroads (AAR) for Class I rail shipments
 - www.aar.org
 - U.S. Army Corps of Engineers (*barge movements*)
 - www.usace.army.mil/
 - Federal Grain Inspection Service (*export inspections*)
 - St. Lawrence Seaway Authority

- **Sample Selection and Size**

- The grain shipment statistics are predominantly gathered by the U.S. Department of Agriculture from available freight information. Consequently, the data incorporated into the *Grain Transportation Report* from external sources is limited to the sample sizes of the respective data collection procedures adopted in the development of each source.
 - Information on the sample sizes represented in the external data sources used to develop the Grain Transportation Report is not available.
- Shipment data collected by the USDA at port locations on vessel movements and rail carload delivery statistics are updated weekly and are not subject to any sampling.
- Because the majority of grain exports from the U.S. are composed of wheat, soybean, and corn, export statistics for these three grain commodities are reported separately in the database.
- The database does not include import statistics for grain shipments.

- **Procedure**

- The USDA compiles the Grain Transportation Report on a weekly basis from data collected by its Agricultural Marketing Service (AMS) and from external sources.
- Statistics on U.S. rail carloads of grain shipments by Class I railroads are collected from the Association of American Railroads (AAR) on a weekly basis to update the database.
- Data on the export inspection volumes of grain shipments are collected from the Federal Grain Inspection Service.
- Barge shipment statistics of grains in terms of shipment tonnage are collected from the U.S. Army Corps of Engineers.
- Statistics on rail carload deliveries and freight rates are collected by the USDA from shippers at ports to update the database weekly.

- **Freight Demand Characteristics**

- *Commodity*
 - Total grain
 - Individual statistics for wheat, corn, and soybeans for exports and barge movements

-
- *Origin-Destination*
 - Not available
 - *Routing*
 - U.S. coastal region for exports:
 - *Pacific*
 - *Mississippi*
 - *Texas*
 - *Total for all coasts*
 - “Inland river lock” for barge shipments
 - For e.g., Mississippi River (Lock 27)
 - *Shipment*
 - Volume of export shipments inspected (*Bushels: U.S. dry measure equal to 2,152.42 cubic inches*)
 - Carloads for rail deliveries to ports by coast
 - Shipments tons
 - Barge movements (*in 1,000 tons*)
 - Export sales (*in 1,000 metric tons*)
 - *Transport*
 - Truck
 - Rail
 - Waterway
 - *Other*
 - Average prices of commodities
 - Number of vessel calls at ports by coast

Quality Control Procedures

- Not available

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Grain shipment activity across the United States

Frequency of Data Collection and Update

- Weekly

Limitations of Data Source

- The database does not capture import statistics for grain shipments.
- Details on the origin-destination of grain shipments cannot be inferred from the data.

Contact Addresses

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U.S. Department of Agriculture (AMS-TMD)
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U.S. Department of Agriculture (AMS-TMD)
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LTL (*LESS THAN TRUCKLOAD*) COMMODITY AND MARKET FLOW DATABASE

SPONSORING ORGANIZATION

- American Trucking Associations (ATA)

AVAILABILITY

- Printed reports and data files available to subscribing carriers only

DATABASE DESCRIPTION

The Less than Truckload (LTL) Commodity and Market Flow database is a commercial data source developed by the American Trucking Associations (ATA). The objective of the database is to report statistics for LTL shipments of subscribing carriers. LTL shipments have freight quantities less than what is required for the application of a truckload rate, usually 10,000 lbs.

The LTL shipment statistics reported in the database are only available to the subscribing carriers that participate in the survey. These statistics are useful for carriers in assessing their market position in the movement of LTL shipments.

DATA COLLECTION

Performing Organization

- Martin Labbe Associates (MLA)

Methodology

- **Sources**
 - Subscribing LTL carriers
- **Sample Selection and Size**
 - Data collection does not involve any sampling procedure prior to conducting the survey.
 - LTL shipment statistics are collected by surveying all carriers subscribing to the database.

- Sample size = Number of LTL carriers subscribing to the database

-
- *Intracompany* and *pooled* LTL shipment statistics are not collected.
 - **Procedure**
 - Details on the type of carrier survey (*questionnaires* or *interviews*) are not available.
 - **Freight Demand Characteristics**
 - *Commodity*
 - Classification based on type of service:
 - *Standard delivery time*
 - *Nonstandard delivery time*
 - *Special equipment or handling*
 - *Origin-Destination*
 - 3-digit to 3-digit zip code origin/destination detail for domestic shipments
 - Foreign area (*Canada, Mexico, Asia, Europe, Other*)
 - *Routing*
 - Mileage
 - *Shipment*
 - Weight
 - Volume
 - Number of shipments
 - Number of pieces
 - *Transport*
 - Truck (*LTL*)
 - Intermodal
 - Interline (*Freight moving over two or more transportation lines*)
 - *Other*
 - Revenue
 - Ton-miles

Quality Control Procedures

- Not available

Costs Incurred in Database Development

- Not available

Geographical Coverage

- National
- State
- Metropolitan

Frequency of Data Collection and Update

- Monthly
- Database available one week after all carrier data are received

Limitations of Data Source

- The database reports LTL shipment statistics only for the subscribing carriers. Accordingly, shipment statistics for nonsubscribing LTL carriers are not included in the database, which may constitute a significant percentage of the total LTL shipments in the U.S.
- Standardized reports and data files of LTL shipment statistics are only available to the subscribing carriers participating in the survey.
- The database does not report statistics for *intra company* and *pooled* LTL shipments.

Contact Addresses

American Trucking Associations (ATA)
Trucking Information Services
2200 Mill Road
Alexandria, VA 22314-4677
Tel: (703) 838-1700
www.trucking.org

Martin Labbe Associates (MLA)
555 West Granada Blvd
Suite F-11
Ormond Beach, Florida 32174
Tel: 386-672-4413
Fax: 386-672-5396
<http://www.mlabbe.com/>



NATIONAL TRANSPORTATION STATISTICS (NTS)

SPONSORING ORGANIZATION

- Bureau of Transportation Statistics (BTS) – USDOT

AVAILABILITY

- Publicly available
- Annual printed report 19 months after end of period
- Online data available at the following address of the Bureau of Transportation Statistics:
 - http://www.bts.gov/publications/national_transportation_statistics/

DATA SOURCE DESCRIPTION

The National Transportation Statistics (NTS) database is compiled and developed annually by the Bureau of Transportation Statistics (BTS), USDOT. The database provides detailed information on the condition and performance of existing transportation facilities, current traffic operations and fleet sizes by each mode of transport, modal accidents and fatality statistics, transport-economy relationships, energy utilization in transportation, and the environmental impact of transportation systems.

DATA COLLECTION

Performing Organization

- Volpe National Transportation Systems Center, U.S. Department of Transportation
- Bureau of Transportation Statistics (BTS), USDOT

Methodology

- **Sources**
 - Standard data sources for each mode from federal government agencies, private industries, and associations are used by the BTS to compile and publish the *National Transportation Statistics (NTS)* database.
 - For example, the *Highway Performance Monitoring System (HPMS)* developed by the Federal Highway Administration (FHWA) is used by the BTS to compile road-mileage data.

- **Sample Selection and Size**

- BTS does not conduct any surveys to collect transportation statistics for the NTS database. The NTS database is prepared from standard data sources developed by federal government agencies, private industries and associations for each mode of transport.
 - Sample sizes represented in each mode-specific data source for the NTS database are not available.

- **Procedure**

- BTS publishes the National Transportation Statistics database using the data collected from standard data sources specific to each mode of transport.
- All the transportation statistics reported in standard published data sources for each mode are collected and compiled by the Volpe National Transportation Systems Center for the BTS and incorporated into the NTS database.

- **Freight Demand Characteristics**

- *Commodity*
 - Not available
- *Origin/Destination flows*
 - Not available
- *Routing*
 - Not available
- *Shipment*
 - Total shipment traffic by each mode of transportation
- *Transport*
 - All modes
 - *Highway*
 - *Air*
 - *Rail*
 - *Water*
 - *Pipeline*
 - Vehicle miles of travel
 - Passenger- and ton-miles by mode

- *Other*

- Physical condition of transportation system
- Operating expenses and revenue for modes
- Inventory of vehicles, aircraft, and vessels
- Employees for each mode

Quality Control Procedures

- BTS publishes transportation statistics for each mode in a similar format (*multi-modal information*) in the NTS database to determine annual variations in statistics for each mode and to ensure a higher degree of quality control.

Geographical Coverage

- The NTS database covers transportation statistics for the fifty states, District of Columbia, Puerto Rico, and the U.S. Virgin Islands
- Transportation statistics of U.S. imports and exports with Canada and Mexico
- Air passenger arrival and departures for selected foreign countries

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- BTS does not conduct any separate surveys to gather information on U.S. transportation statistics for the NTS database. Consequently, the reliability of the data collected from standard data sources cannot be verified by the NTS data.
- Since the NTS database is prepared from standard mode specific data sources obtained by the BTS from government and private organizations, the sampling and non-sampling errors that are present in some of the standard databases are also included in the NTS database.
- The NTS database does not provide information on commodity shipments, origin/destination flows, and routing of traffic, which are essential variables required for the planning and design of transportation systems for the future.
- The annual printed report is available to the public 19 months after the end of the completion period.

Contact Address

U.S. Department of Transportation
Bureau of Transportation Statistics (BTS)
400 7th Street, SW • Room 3103
Washington, DC 20590
L'Enfant Plaza Metrorail Station (7th and D Streets)
(800) 853-1351
www.bts.gov

NATIONWIDE TRUCK ACTIVITY & COMMODITY SURVEY (NO LONGER CONDUCTED)

SPONSORING ORGANIZATION

- U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), and Federal Railroad Administration (FRA)

AVAILABILITY

- 1990 *Master File* not available for public
- 1990 *Public Use Tape* available from ORNL
- ORNL printed data source
- CD-ROM available from USDOT/Bureau of Transportation Statistics (BTS)

DATABASE DESCRIPTION

The Nationwide Truck Activity and Commodity Survey (NTACS) was conducted by the U.S. Bureau of the Census for the period October 29, 1989 to October 27, 1990 (referred to as the 1990 NTACS) for the U.S. Department of Transportation's Office of the Secretary, the Federal Highway Administration (FHWA), and the Federal Railroad Administration (FRA).

During the period from October 29, 1989 to October 27, 1990, the U.S. Census Bureau collected sample day (*one- and two-day intervals*), weekly, and annual operational activity data from a sample of trucks that responded to the 1987 Truck Inventory and Use Survey. The 1990 NTACS was designed as a follow-on to the 1987 TIUS to give additional information on nationwide truck operations in terms of location, temporal activities, intermodal movement, and geographic detail. However, with the inception of the CFS database with its much wider scope for surface freight data, the NTACS is no longer conducted.

DATA COLLECTION

Performing Organization

- Oak Ridge National Laboratory (ORNL)
- U.S. Bureau of the Census, Department of Commerce

Methodology

- **Sources**
 - Sample of trucks registered in each of the 50 states and the District of Columbia that responded to the 1987 Truck Inventory and Use Survey database

- **Sample Selection and Size**

- The truck sample selected for the 1990 National Truck Activity and Commodity Survey (NTACS) consisted of a sample of registered trucks for each state and the District of Columbia that responded to the 1987 TIUS and did not have any unit non-responses.
- The sample size for the 1990 NTACS was based on the range of operational data reported in the 1987 TIUS.
- For long-haul trucks, the sampling probability for the 1990 NTACS was 1.0. In other words, all the trucks surveyed in the 1987 TIUS having a *long-range* of operation were selected for survey in the 1990 NTACS.
- For short-haul trucks, the sampling probability was 0.5, which implies that approximately half of the trucks that reported having a *short-range* of operation in the 1987 TIUS were selected for the 1990 NTACS.
- A small random portion of the remaining 1987 TIUS truck respondents were included in the sample for the 1990 NTACS.
- The sample size for the 1990 NTACS was approximately 44,000 U.S. registered trucks that participated in the 1987 TIUS.

- **Procedure**

- The 1990 NTACS was fully funded by the Department of Transportation and authorized by the United States Code, Title 13 that provided for a mandatory response from truck operators.
- The selected sample of truck operators were surveyed by the U.S. Bureau of the Census by using “mail-out/mail-back” questionnaire survey forms.
 - NTACS – 1 form (*short-haul truck operators*)
 - NTACS – 2 form (*long-haul truck operators*)
- The survey was conducted over a 12-month period starting October 29, 1989 and ending October 27, 1990.
 - The 12-month period was divided into thirteen 4-week periods.
 - Each selected truck was randomly assigned to a 4-week period.
 - Short-haul trucks reported their physical and operating statistics for one particular day (predetermined) in the 4-week period.
 - Long-haul trucks reported their physical and operating statistics for two days (predetermined) in the 4-week period.

- **Freight Demand Characteristics**

- *Commodity*
 - Twenty-six Commodity categories identified in the Vehicle Inventory and Use Survey (VIUS) and HAZMAT (*hazardous materials*) categories
- *Origin-Destination* (only available in *Master File*)
 - Cargo load and discharge patterns for sample days
 - Stop location
 - Place type (*port, warehouse area*)
- *Routing* (only available in *Master File*)
 - Detailed stop locations of cargo loads and discharges
 - Information on type of stop activity at stop location
 - Pick up *or*
 - Delivery
 - Time of arrival and departure of cargo
- *Shipment*
 - Percent mileage by commodity type
 - Sample day weight by commodity type and stop location (*only Master File*)
- *Transport*
 - Truck mode
- *Other*
 - Physical characteristics
 - Dimensions
 - Vehicle configuration
 - *Body/trailer type*
 - Model year
 - Annual operating statistics
 - Operating periods (weeks)
 - Mileage
 - Number of states served
 - Top three states of operation in the U.S. (*Master File*)
 - Operations in Canada/Mexico (*Master File*)
 - Type of activity

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- Daily operating statistics
 - Mileage
 - Number of stops
 - Type of activity
 - Highway types utilized in operation
 - Time of day and days of week operated
 - Fuel use
 - Tolls
 - Capacity and load

Quality Control Procedures

- Not available

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- U.S. (nationwide) and region- (state) based truck activity statistics

Frequency of Data Collection and Update

- No longer conducted

Contact Addresses

Stacy Davis, Data Manager
Oak Ridge National Laboratory
(615) 574-5957
www.ornl.gov

Jim March, Data Manager
DOT/FHWA, HPP-12
(202) 366-9237
www.fhwa.dot.gov

NORTH AMERICAN TRUCKING SURVEY (NATS)

SPONSORING ORGANIZATION

- Association of American Railroads (AAR)

AVAILABILITY

- Proprietary
- Available to federal and state agencies (*on request*)

DATABASE DESCRIPTION

The North American Trucking Survey (NATS) was first conducted in 1993 by the Association of American Railroads (AAR) to collect statistics for predominantly long-haul truckload shipments. The survey was performed by Arthur D. Little, Inc., under contract with the AAR.

The NATS data is collected by sampling trucks at specific truck stop locations based on shipment length-of-haul. At each truck stop location, the sampled truck drivers are interviewed (*roadside interview survey*) to obtain information on the shipment, the operator, and the annual vehicle miles traveled (VMT) by the drivers.

DATA COLLECTION

Performing Organization

- Arthur D. Little, Inc., under contract with AAR

Methodology

- **Sources**
 - Predominantly long-haul trucks sampled to be surveyed at truck stop locations
- **Sample Selection and Size**
 - Sample selection for NATS targets specific:
 - Truck stop locations
 - Trucks
 - Truck stop locations are sampled based on the average volume of trucks stopping at each truck stop location.

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- NATS attempts to capture the shipment and operator statistics of predominantly long-haul trucks. Consequently, individual trucks are sampled based on the length-of-haul of truckload shipments.
 - The probability of a truck being selected for the survey is directly proportional to the “length-of-haul” of the truckload shipment.

$P \propto L$ where: P is the probability of selection of truck for survey
 L is the “length-of-haul” of shipment
 α is the coefficient of proportionality

- Data on the number of trucks sampled is not available
- **Procedure**
 - Direct roadside interview surveys of the drivers of sampled trucks at each truck stop location
 - Truck drivers are asked to give information on their current and preceding shipment movements.
- **Freight Demand Characteristics**
 - *Commodity*
 - 3-digit STCC codes
 - *Origin-Destination*
 - City
 - State
 - *Routing*
 - Not reported
 - *Shipment*
 - Weight (tons)
 - *Transport*
 - Truck mode
 - Trailer type
 - *Other*
 - Annual vehicle miles traveled (VMT) by driver
 - Operator classification
 - *For-hire*
 - *Private*

Quality Control Procedures

- Because most of the truck stop locations selected serve a significant number of trucks per day, the sampling procedure for site locations ensures that data is collected from a large number of long-haul trucks per day. This increased the efficiency of the data collection process.
- Non-sampling errors in terms of “unit” and “item” nonresponses were essentially eliminated during the data collection process because direct roadside interviews of truck drivers were conducted.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- National

Frequency of Data Collection and Update

- First collected in 1993 but discontinued in 1994
- Database developed for 1997
- No information on frequency of updates after 1997

Limitations of Data Source

- Routing data is an important shipment statistic for estimating the demand on each link of the transportation network in planning and policy decisions for the future. NATS, however, does not provide shipment routing information for long-haul trucks.

Contact Address

The Association of American Railroads
50 F Street NW
Washington, DC 20001-1564
Tel: 202-639-2100
www.aar.org



PORT IMPORT/EXPORT REPORTING SERVICE (PIERS)

SPONSORING ORGANIZATION

- Commonwealth Business Media, Inc.

AVAILABILITY

- Database available for purchase in many formats according to different business needs
- 24 months of data available on-line on subscription basis:
 - *Customized reporting*
 - *Database development*
- Monthly data available the first Monday of the fourth week following the end of the month
- Data available in the following formats:
 - *CD-ROM*
 - *Diskette*
 - *Web access*
 - *Printed reports*
 - *PC desktop file*
 - *E-mail report*
- Information on purchasing PIERS databases is available at the following address:
 - www.piers.com

DATABASE DESCRIPTION

The Port Import/Export Reporting Service (PIERS) database, developed by Commonwealth Business Media, Inc., is one of the most comprehensive databases on U.S. foreign waterborne imports and exports. The database also reports trade shipment statistics for cargo movements between ports in Mexico and South America to major trade partners around the world.

The PIERS database was originally developed by The Journal of Commerce Group before the group was purchased by Commonwealth Business Media, Inc. in November 2001. With the purchase of the JOC Group, Commonwealth Business Media, Inc. not only obtained ownership of the PIERS database, but also the JOC magazine and JOC on-line Web site www.joc.com, thereby becoming one of the leading information service providers in the areas of global trade and transportation sectors.

DATA COLLECTION

Performing Organization

- PIERS reporters at U.S. Custom Houses

Methodology

- **Sources**
 - Electronically filed or hard-copy freight vessel manifests submitted to the U.S. Customs Service
- **Sample Selection and Size**
 - Vessel manifest data are collected from all foreign trade carriers at major port locations in the U.S., Mexico, Latin America, and Asia.
 - Manual vessel manifests filed at smaller port locations are not reported in the database.
 - No sampling is done and all the statistics in terms of carrier type and shipments are collected, for example:
 - Containerized
 - Break bulk
 - Dry bulk
 - Tankers
 - Thus, data reported in the PIERS database accurately represents the actual shipment statistics since data is collected from vessel manifests of all foreign trade carriers without any sampling procedure. The number of carriers reporting their statistics in the vessel manifests is highly variable and is not available.
- **Procedure**
 - Details on import and export shipments are gathered by the U.S. Customs Service at ports of entry and exit from vessel manifests.
 - Electronic vessel manifests are filed by international carriers with U.S. Customs using the Customs' *Automated Manifest System*.
 - PIERS reporters at all major U.S. seaports collect the import and export information from the Customs' vessel manifests and incorporate them into the PIERS database.
 - In total, PIERS reporters gather import and export shipment information from approximately 25,000 bills of lading and vessel manifests at major ports of entry and export.

- **Freight Demand Characteristics**

- *Commodity*

- 6-digit Harmonized System Commodity classification (HS)
- Actual bill of lading/manifest commodity description
- PIERS 7-digit COMCODE classification

- *Origin-Destination*

- For each individual shipment, the following details are provided:
 - U.S. shipper/consignee name for export shipments
 - Foreign shipper name for U.S. imports
 - U.S. city of origin/destination
 - Foreign country of import
 - Foreign country and city for export shipments

- *Routing*

- U.S. port of loading/unloading
- Foreign port of final origin/destination
- Foreign port of transshipment
- Inland mode of transport *from origin to port of exportation/from port of entry to inland destination* not provided

- *Shipment*

- Weight
- Value

- *Transport*

- Waterborne

- *Other*

- Carrier and vessel name
- Container size
- Estimated cubic volume utilized
- Package type
- U.S. port date of arrival/departure
- Linkages to importer/exporter company information

Quality Control Procedures

- To minimize *non-sampling errors* concerning the data reported in the vessel manifests, PIERS quality assurance staff performs regular audits and cross-checks of the shipment documentation reported by carriers to U.S. Customs before incorporating the data into the PIERS database.

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- In addition, the majority of importers, exporters, and carriers that subscribe to the PIERS database help ensure the accuracy of the data reported in the database by verifying their own shipment information and reporting any discrepancies immediately to Commonwealth Business Media, Inc.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- Worldwide sea-trade statistics across major international trade routes

Frequency of Data Collection/Update

- Monthly

Limitations of Data Source

- The reported U.S. origin or destination locations of export or import shipments may be regions representing corporate locations or distribution centers and not the actual locations of origin or destination of shipments.

Contact Address

Commonwealth Business Media, Inc.
Headquarters
400 Windsor Corporate Center
50 Millstone Road, Suite 200
East Windsor, NJ 08520-1415
Tel: (800) 221-5488
www.cbizmedia.com

QUARTERLY COAL REPORT

SPONSORING ORGANIZATION

- U.S. Department of Energy

AVAILABILITY

- Publicly available
- Printed report within 5 months from end of quarter
- Online quarterly coal data available at the following address:
 - <http://www.eia.doe.gov/cneaf/coal/page/pubs.html>

DATABASE DESCRIPTION

The Quarterly Coal Report is developed and published by the U.S. Department of Energy in fulfillment of its responsibilities in terms of the Federal Energy Administration Act of 1974 as amended, to collect and disseminate statistics on energy-related activities.

The Quarterly Coal Report (QCR) provides detailed quarterly summary statistics of U.S. coal production, distribution, foreign trade, receipts, consumption, and stocks to a wide audience including the U.S. Congress, federal and state agencies, the coal industry, and the general public.

DATA COLLECTION

Performing Organization

- Energy Information Administration (EIA), U.S. Department of Energy

Methodology

- **Sources**
 - Manufacturers consuming coal, coke plants, coal producers, and distributors
 - U.S. Bureau of the Census, Foreign Trade Statistics
 - <http://www.census.gov/foreign-trade/www/>
- **Sample Selection and Size**
 - Only manufacturers consuming one thousand or more tons of coal in the previous year are required to complete the EIA-3 form used by the Energy Information Administration.

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- Approximately 700 manufacturers are surveyed using the EIA-3 form by the Energy Information Administration (EIA) to obtain information on their quarterly coal consumption.
 - To obtain information on coke and breeze production, distribution, and stocks, the coke plants are surveyed using the EIA-5 form.
 - Around twenty-five to thirty U.S. coke plants are surveyed quarterly using the EIA-5 form. The respondent list is updated frequently from the information gathered from relevant industry literature.
 - Only coal producers and distributors producing or distributing in excess of 2,000 equivalent lbs of coal are surveyed.
 - All U.S. industries producing 30,000 or more short tons of coal annually are selected to report their statistics in the Schedule Q, EIA-6 form.
 - All U.S. coal distribution companies with an average coal stock of 10,000 or more short tons per quarter are also selected to report in the Schedule Q, EIA-6 form.
 - Around 630 coal producers and distributors are surveyed quarterly using the Schedule Q of the EIA-6 survey form.

- **Procedure**

- Except for imports and exports, all other statistics pertaining to coal production, distribution, consumption, and stocks are collected by the EIA through mail surveys.
- Coal consumption and stock statistics are collected by surveying manufacturers that consume coal for all uses other than for coke production.
 - The EIA uses the EIA-3 form to survey these manufacturers.
 - The EIA-3 form captures detailed data on *coal consumption, stocks, prices, and receipts* from the manufacturers surveyed.
- Detailed statistics on coke and breeze production, distribution, and stocks are collected by the EIA by surveying all U.S. coke plants.
 - The EIA uses the EIA-5 form to survey all U.S. coke plants.
 - Approximately thirty U.S. coke plants are surveyed using the EIA-5 form to obtain data on their coke production, distribution, and stocks.
- The EIA also collects data on coal productions and distributions for each coal-producing state by surveying all coal-producing and distributing companies that produce or distribute in excess of 2,000 lbs of short tons.

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- The EIA surveys all the sampled coal producing and distributing companies on a quarterly basis using the Schedule Q of the EIA-6 survey form.
 - Schedule-Q of Form EIA-6 collects data on coal productions, producer stocks, and distributor stocks for each coal-producing state.
 - The EIA also collects, on an annual basis, coal distribution statistics from all U.S. companies that own or purchase and distribute more than 50,000 short tons of coal annually. Exceptions on the threshold limit are, however, allowed for the states of Arkansas, Maryland, Oklahoma, and Pennsylvania that have a 10,000 short ton annual threshold limit.
 - Import and export coal-trade statistics are collected by the U.S. Department of Energy from the foreign trade statistics developed by the U.S. Bureau of the Census.
- **Freight Demand Characteristics**
 - *Commodity*
 - Coal
 - *BTU content*
 - *Origin*
 - *Origin-Destination*
 - Origins
 - *U.S. State*
 - *Foreign country*
 - Destinations
 - Foreign country
 - U.S. and Canadian Sectors
 - *Electric generation*
 - *Coke plants*
 - *Industrial plants*
 - *Residential*
 - *Commercial*
 - *Routing*
 - Customs District for imports and exports
 - *Shipment*
 - Weight

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- *Transport*
 - *Mode*
 - *Rail*
 - *Truck*
 - *Inland waterway*
 - *Ocean port*
 - *Great Lakes*
 - *Slurry*

Quality Control Procedures

- To minimize the non-sampling errors in the data collection and ensure comprehensive coal statistics, the EIA follows up with the nonrespondents using written and telephone requests.
- The EIA maintains all the coal data in a computerized system and conducts frequent edits to ensure consistency and accuracy with minimum reporting errors.
- The data collected with the EIA-3 form are compared with the coal distribution statistics reported in the annual survey of companies using the EIA-6 form to identify under-coverage problems in the EIA-3 form.
- The list of coal consuming manufacturers is updated frequently, using data collected from State Air Quality and Energy Offices, to ensure that the sample surveyed with the EIA-3 form is selected from the entire population of coal consuming manufacturers.
- The list of coal producers to be surveyed with Schedule Q of Form EIA-6 is also updated frequently using data reported by the Mine Safety and Health Administration (MSHA), U.S. Department of Labor, and the lists maintained by various state agencies.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Coal statistics reported for approximately twenty-six U.S. coal-producing states

Frequency of Data Collection and Update

- Quarterly
- Annually

Limitations of Data Source

- The quarterly coal reports for the periods of January-March, April-June, July-September and October-December are preliminary and unrevised. Revised statistics for the entire year are available only in the *Coal Industry Annual* publication available in the summer of the following year.
- The Quarterly Coal Report does not collect origin-destination information, which is needed to establish routing patterns of coal movements on the U.S. transportation network.

Contact Address

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
Tel: 202-586-5575
Fax: 202-586-4403
www.energy.gov



SHIP MOVEMENTS DATABASE

SPONSORING ORGANIZATION

- Lloyd's Maritime Information Services, Inc. (LMIS, Inc.)

AVAILABILITY

- Available on-line on a subscription basis (*also available in extract form on request*)

DATABASE DESCRIPTION

The Ship Movements database is a comprehensive data source containing worldwide merchant ship movement information. The database is developed by Lloyd's Maritime Information Services, Inc., a joint venture of Lloyd's of London Press and Lloyd's Register of Shipping. Lloyd's Maritime Information Services, Inc. is the only single source that provides detailed maritime information on vessel movements among major ports around the world.

The Ship Movements database reports current movements of a large number of merchant vessels (around 30,000) that transport international freight. One of the significant features of this maritime database is the daily updates of ship movement information. This is possible due to up-to-date information gathered by Lloyd's agents stationed at principal ports worldwide.

The database is used extensively in the planning and development of vessel service patterns on international waterborne trade routes.

DATA COLLECTION

Performing Organization

- Lloyd's agents stationed at over 5,000 ports worldwide

Methodology

- **Sources**
 - Merchant vessels engaged in international trade movements
- **Sample Selection and Size**
 - The ship movements survey is administered by Lloyd's agents at major ports around the world to a sample of the following ship categories:

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- Tankers and combination vessels weighing more than 6,000 dead weight tons (DWT).
 - Dry Bulk Carriers (DBC) weighing more than 10,000 DWT.
 - All other vessel types weighing more than 5,000 DWT.
 - In total, the database covers approximately 2 million ship movements in a calendar year.
- **Procedure**
 - The Ship Movements database is developed and updated by LMIS, Inc. from information gathered on current worldwide movements of merchant vessels by Lloyd's agents at principal ports around the world.
 - The information is collected by conducting surveys of vessels at each major port location worldwide.
 - The vessel surveys are designed to gather detailed information on vessel movement itineraries between ports (including arrival and departure dates of shipments), and vessel characteristics (including name, type, and vessel capacity).
 - Copies of survey forms used by Lloyd's agents are not available.
- **Freight Demand Characteristics**
 - *Commodity*
 - Not available
 - *Origin-Destination*
 - Not available
 - *Routing*
 - Vessel itineraries based on port-to-port movements
 - *Shipment*
 - Total shipment tonnage (*inferred from vessel capacity and load factor*)
 - *Transport*
 - Arrival and departure dates
 - *Other*
 - Vessel characteristics

Quality Control Procedures

- High quality and efficiency in data collection is ensured by the Lloyd's Agency Department that provides central office support to the Lloyd's agents stationed at ports worldwide.
- The Lloyd's Agency Department conducts periodic inspections and hosts conferences for Lloyd's agents around the world to improve the professional surveying skills of the agents.
- The daily updates of the Ship Movements database are accomplished by electronic transmission of survey reports and standard forms by Lloyd's agents to the LMIS, Inc.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Worldwide

Frequency of Data Collection and Update

- Daily

Limitations of Data Source

- The database does not report worldwide waterborne commodity statistics and consequently cannot be used to determine cargo routing patterns.
- Ship movements at approximately 5,000 major ports worldwide are included in the database. The database, however, does not report ship movements at all port locations worldwide that have international trade flows.

Contact Address

Ms. Lorraine Parsons
Lloyd's Maritime Information Services, Inc.

Tel: (800) 423-8672

Fax: (203) 358-0437

www.lmis.com

(Temporarily unavailable)



STATE ESTIMATES OF TRUCK TRAFFIC

SPONSORING ORGANIZATION

- The Federal Highway Administration (FHWA), U.S. Department of Transportation

AVAILABILITY

- Publicly available
- *Annual Average Daily Traffic (AADT)* estimates of single unit and combination trucks for selected non-local road sections and *vehicle miles traveled (VMT)* estimates for nine classes of trucks by highway functional system. The information is available to the public in FHWA's *Highway Performance Monitoring System (HPMS)*.
 - Comprehensive HPMS information and data available at the following address:
 - <http://www.fhwa.dot.gov/policy/ohpi/hpms/>
- Additional AADT estimates are available from individual state highway agencies.

DATABASE DESCRIPTION

Estimated annual average daily traffic volumes for single unit and combination trucks and vehicle miles traveled estimates for nine classes of trucks by highway functional systems are available from individual state highway agencies. The agencies provide the Federal Highway Administration (FHWA) with the latter data. The data are included in the Highway Performance Monitoring System (HPMS), which is available to the public. Apart from the *AADT* and *VMT* data in the HPMS, additional AADT estimates for trucks can be obtained directly from the individual state highway agencies. These data may be available online (database format) or the hard copy versions can be acquired by contacting the respective state highway agency.

The state highway agencies also report total AADT values for trucks, percent values for single-unit trucks and percent values for combination trucks for a sample of non-local highway sections to the FHWA in ASCII format on magnetic tape or diskettes.

DATA COLLECTION

Performing Organization

- State and local highway agencies

Methodology

- **Sources**
 - Vehicle counts collected by state and local highway agencies
- **Sample Selection and Size**
 - Statewide truck traffic data collection involves selecting a sample of highway site locations for collecting vehicle count data and the selecting of time periods for vehicle classification data collection (*permanent count* or *temporary count sites*)
 - Vehicle classification data are collected at a small number of permanent count sites in each state.
 - The sample size for permanent count sites range from 50 to 100 for each state.
 - Vehicle classification counts from permanent count sites are collected daily and do not require any time-of-day sampling.
 - Vehicle classification data are also collected at a larger number of temporary classification sites (*approximately 200*)
 - Traffic count data, without vehicle classification, is collected at a large number of temporary count sites in each state:
 - Sampling by time-of-day at temporary count sites aims to collect vehicle counts during periods of maximum traffic.
 - Counts at temporary sites are usually sampled over a 48-hour weekday period once every 3 years.
- **Procedure**
 - Statewide truck traffic volumes are estimated by individual state and local highway agencies by collecting vehicle counts at sampled highway site locations.
 - Vehicle classification data are collected using *Automatic Vehicle Classifiers*, (*AVCs*), which are set up at a small number of permanent count locations and at a larger number of temporary count sites.
 - *AVCs* use an axle spacing interpretation algorithm to interpret vehicle axle spacing and classify vehicles into the appropriate FHWA specified vehicle categories.
 - Since vehicle axle spacing varies from state to state, each state develops its own algorithm, specific to its needs, for the AVC system.

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- Traffic counts are manually collected by state and local highway agencies at a large number of temporary count sites.
 - VMT data are calculated for nine to ten classes of trucks from the vehicle classification data by highway functional system.
 - The VMT data for different truck classes by highway functional systems are reported annually by state highway agencies to the FHWA in Lotus 123 file format.
 - The AADT estimates are computed from the vehicle counts at permanent and temporary count locations for single-unit and combination trucks on selected non-local road sections.
 - Truck classification count data from permanent count sites are not factored since the traffic counts are collected by *AVCs* daily. Consequently, traffic data from *AVCs* are directly used to compute AADT values.
 - Traffic counts collected from temporary count sites over a 48-hour weekday period need to be factored to estimate truck traffic over the entire week.
 - The factors used to calculate the AADT from temporary count data are calculated by computing the numerator and denominator of the factor separately:
 - The numerator of the factor is taken as the AADT value calculated from permanent count sites using *AVCs*.
 - The denominator of the factor depends on whether monthly or weekly factors are used in the factoring procedure.
 - A detailed discussion of the factoring procedure for estimating AADT values from temporary count data is available in the *Traffic Monitoring Guide (TMG)* at the following Web link address:
 - <http://www.fhwa.dot.gov/ohim/tmguid/pdf/tmg2.pdf>
 - Because truck travel patterns vary significantly compared to other vehicles, separate factors are calculated for estimating total AADT values and AADT values of trucks.
- **Freight Demand Characteristics**
 - *Commodity*
 - Not available
 - *Origin-Destination*
 - Not available
 - *Routing*
 - Not available

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- *Shipment*
 - Not available
 - *Transport*
 - *AADT* estimates of trucks distinguished by:
 - Length *or* number of trailers (*single, combination*)
 - VMT estimates for nine truck configurations distinguished by:
 - Number of trailers
 - Number of axles
 - Separate VMT estimates for four-tire trucks in some states

Quality Control Procedures

- To ensure accurate AADT estimates, separate factors are computed for trucks and total AADT (*dominated by car traffic*). Because truck travel patterns vary significantly across months compared to passenger travel, separate factors for trucks and cars ensures more reliable AADT estimates.
- In computing AADT values from classification data gathered using AVCs at permanent count sites, the AASHTO recommended using the *average of averages method* instead of the more common *simple averages method*.
 - The simple averages method for computing AADT does not provide accurate values in the case of missing data during periods of equipment *down time*. The ***average of averages method*** recommended by AASHTO provides more reliable and accurate estimates of AADT.
- For temporary traffic counts, at least 48-hour weekday periods are recommended to capture traffic variations over a 24-hour period in the calculation of AADT.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Truck traffic estimates for all states

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- Although there are many factoring procedures for estimating AADT values from short-term count data at temporary count sites, most of the commonly used factoring procedures used to compute AADT from weekly traffic counts fail to reflect the low-traffic volumes that occur during weekends. This leads to an overestimation as high as 30% of the truck and the total AADT volumes.
- The data source only reports the AADT values for single-unit and combination trucks. Consequently, AADT values for each of the nine truck configurations cannot be imputed.
- The database does not capture information on the origin-destination flows or the routing of trucks, which are essential data required for planning and designing transportation systems to accommodate rapidly growing freight transportation demands.

Contact Address

The Federal Highway Administration (FHWA)
U.S. Department of Transportation
400 7th St., SW
Washington, DC 20590
Tel (administration): (202) 366-0604
www.fhwa.dot.gov/

(Also, contact individual State Highway Agencies for additional AADT estimates.)



TRANSBORDER SURFACE FREIGHT DATABASE

SPONSORING ORGANIZATION

- Bureau of the Census, U.S. Department of Commerce
- Federal Railroad Administration (FRA)

AVAILABILITY

- Publicly available
- The Transborder Surface Freight database is available online at the Bureau of Transportation Statistics Web site:
 - www.bts.gov/transborder
 - Zipped monthly data files
- Online access to data reports through interactive searchable queries—<http://www.bts.gov/ntda/tbscd/search.html>
- Annual report tables — <http://www.bts.gov/ntda/tbscd/reports.html>

DATA SOURCE DESCRIPTION

The Transborder Surface Freight database is developed on a monthly basis by the Bureau of Transportation Statistics (BTS) at the U.S. Department of Transportation (USDOT) under a contract with the U.S. Bureau of the Census. The Census Bureau provides BTS with detailed reports of U.S. international trade statistics collected as part of its Foreign Trade Statistics program. Using the Census reports, BTS develops tables of U.S. import and export trade flows with Canada and Mexico, including shipment characteristics by commodity type and surface modes of transportation.

Development of the Transborder Surface Freight database was initiated in 1993. The objective was to study the impacts on U.S. surface trade flows with Canada and Mexico as a result of the North American Free Trade Agreement (NAFTA) signed by the U.S., Canada, and Mexico in December 1993, and enacted on January 1, 1994.

DATA COLLECTION

Performing Organization

- U.S. Customs Service and U.S. Bureau of the Census
 - Data collected by the Census Bureau's Foreign Trade Statistics program
- Bureau of Transportation Statistics (BTS)

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-
- Develops the Transborder Surface Freight database using detailed reports on U.S. international trade flows provided by the Census under a contract agreement

Methodology

- **Sources**
 - U.S. Bureau of the Census *Foreign Trade Statistics* program
- **Sample Selection and Size**
 - Statistics of U.S. import and export shipments with Canada and Mexico reported in the Transborder Surface Freight Database are sample estimates of the total shipments.
 - Transborder Surface Freight database is derived from the U.S. import and export trade data developed by the U.S. Census Bureau as part of its FTS program, which does not include import and export shipments of values less than \$1,251 and \$2,501 respectively.
 - Sample size of shipments for which data is reported in Transborder is highly variable and is thus, not available.
- **Procedure**
 - U.S. international trade statistics are collected by the U.S. Census Bureau for its Foreign Trade Statistics program:
 - Electronic data collection procedures
 - U.S.—Canada Data Exchange, Automated Broker Interface (ABI) and Automated Export Reporting Program (AERP)
 - U.S. Customs paper documents at ports of entry and exit.
 - BTS acquires U.S. international trade data from the Census's FTS program and extracts U.S. import and export data with Canada and Mexico by commodity type and surface mode of transportation.
- **Freight Demand Characteristics**
 - *Commodity*
 - 2-digit Harmonized Schedule commodity codes
 - *Origin/Destination* flow
 - U.S. states by 2-digit U.S. postal codes:
 - U.S. state of origin for export shipments
 - U.S. state of destination for import shipments
 - Canadian province codes

-
- Province of production of U.S. imports from Canada
 - Province of clearance for U.S. exports to Canada
 - Mexican state codes
 - Mexican state of destination for U.S. exports
 - State of ultimate consignee's location
 - Mexican state of origin for U.S. imports not reported
 - *Routing*
 - U.S. Customs District and port of entry for U.S. imports
 - U.S. Customs District and port of exit for U.S. exports
 - *Shipment*
 - Value
 - Shipment weight
 - Imports only
 - Containerized designation
 - U.S. imports only
 - *Transport* (Mode of exit from or entry into the U.S.)
 - Surface modes
 - Mail
 - Truck
 - Rail
 - Pipeline
 - Other
 - Unknown modes
 - Flyaway aircraft
 - Vessels under own power
 - Pedestrians carrying freight
 - Foreign Trade Zones
 - Mode unknown but specified as Foreign Trade Zone (FTZ)

Quality Control Procedures

- Information on transshipped shipment trade statistics has been removed from the Transborder Surface Freight database to make it more comparable with other U.S. international freight databases.
- To obtain consistent data on the state of physical origin of U.S. export shipments, the reporting of the shipment origin by state of exporter has been terminated.

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-
- To ensure accuracy and reliability in the estimates, frequent analytical reviews are conducted by BTS with the help of the U.S. Census Bureau to check for inconsistencies and to make timely improvements to the database.

Costs Incurred in Data Collection

- The Transborder Surface Freight database is developed from the data collected by the U.S. Bureau of the Census for the U.S. foreign trade statistics program. No separate surveys are conducted by the BTS to collect U.S. trade statistics with Canada and Mexico.

Geographical Coverage

- U.S. import and export trade statistics by commodity type and surface mode of transportation specific to Canada and Mexico
- U.S. import trade statistics with Canada by U.S. state of destination and Canadian province of origin
- U.S. import trade statistics with Mexico by U.S. state of destination only
- U.S. export trade statistics with Canada by U.S. state of origin and Canadian province of destination
- U.S. export trade statistics with Mexico by U.S. state of origin and Mexican state of destination

Frequency of Data Collection and Update

- Monthly data files
- Annual reports

Limitations of Data Source

- The ports of exit and entry reported for U.S. trade shipments with Canada and Mexico may not always represent the true port of exit for U.S. export shipments or the true port of entry for U.S. import shipments.
- For U.S. imports from Mexico, the database does not provide information on the Mexican state of origin of the shipments because of current filing procedures.
- For trade shipments on intermodal surface transportation systems (for e.g., rail and truck), the database cannot accurately report the mode of transport of entry or exit into the U.S. owing to incorrect filings by the shippers.

Contact Addresses

U.S. Department of Transportation
Bureau of Transportation Statistics (BTS)
400 7th Street, SW, Room 3103
Washington, DC 20590
L'Enfant Plaza Metrorail Station
(7th and D Streets)
(800) 853-1351
www.bts.gov

U.S. Department of Commerce
Bureau of the Census
4700 Silver Hill Road
Washington, DC 20233-0001
www.census.gov



TRANSEARCH

SPONSORING ORGANIZATION

- Reebie Associates, Inc.

AVAILABILITY

- Commercial Freight database available for purchase.
- Data reports available in different formats (*O/D flows, commodity based*)
- Information in Reebie's TRANSEARCH database is available at the following address:
 - <http://www.reebie.com/images/transearch.asp>

DATABASE DESCRIPTION

The TRANSEARCH database, developed by Reebie Associates, is one of the most widely used commercial sources of freight movement data in the U.S. The development of the TRANSEARCH database involves the fusion of various freight traffic data sources into a common framework for planning and analysis. The database provides detailed U.S. and cross-border origin-destination freight shipment data at the state, Business Economic Area (BEA), county, metropolitan area, and zip-code level detail by commodity type and major modes of transportation.

The freight traffic data in the TRANSEARCH database is used by leading freight carriers and by private and public sector agencies for market analysis, policy analysis and assessment, and decision making for a wide range of transportation planning issues.

DATA COLLECTION

Performing Organization

- Reebie Associates, Inc.

Methodology

- Sources
 - TRANSEARCH database is constructed from a sample of *commercial, public* and *proprietary* freight data sources which include:
 - Commodity Flow Survey
 - ICC Carload Waybill Sample
 - Corps of Engineers Waterborne Commerce Statistics
 - FAA Airport Activity Statistics
 - Census of Transportation — Commodity Transportation Survey (1977)

-
- Bureau of Census Foreign Trade Statistics
 - AAR Freight Commodity Statistics
 - Inter-industry trade patterns
 - *Motor Carrier Data Exchange (MCDE)*:
 - Commodity, spatial (O/D) and shipment size (tonnage, value) data collected from truckload carriers and distributors
 - **Sample Selection and Size**
 - Data source selection
 - Developed from over 100 freight traffic data sources
 - Data sources sampled for four major modes — *Truck, Rail, Air* and *Water*
 - Sampling for *Motor Carrier Data Exchange*
 - Based on geographical detail (state-level, 3-digit & 5-digit zip codes)
 - Truckload carriers of manufactured goods participating in the program
 - Statistics for a total of around 75 million shipments per year are reported

- **Procedure**

The available freight data sources are inconsistent in terms of commodity classifications, geographical detail, and base years. Accordingly, the procedure involves combining each of the data sources together, checking their validity and applicability, assigning commodity geography and mode descriptions, and arriving at a common framework for freight traffic representation.

Due to the complexity of truck freight movements at the state and national levels, the *Motor Carrier Data Exchange* program is an integral part of development of the database to arrive at the origin-destination flows of truck freight traffic. Carriers participating in the *Motor Carrier Data Exchange* program provide information on their annual traffic flows in terms of commodity, statewide origin-destinations, and shipment sizes.

- **Freight Demand Characteristics**

- *Commodity*
 - 4-digit STCC (5-digit available for rail and water)
- *Origin and Destination*
 - State
 - 183 U.S. BEAs

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- Canadian province data
 - Can be customized at the *county* or *zip-code* level
 - *Routing*
 - Highway routings imputed from O/D data
 - *Shipment*
 - Total weight (tonnage) *or*
 - Value *or*
 - Number of loads
 - *Modes of Transportation*
 - Truck (all manufacturing industries and some other)
 - Truckload (TL), Less-than-truckload (LTL), and Private truck
 - Rail, domestic air, and domestic waterborne — (all industries)
 - Intermodal

Quality Control Procedures

- Disaggregation of state-to-state origin-destination flows into BEA and county area O/D flows within each state to get more accurate spatial distribution of freight.
 - Two stage process:
 - *First stage*: origin-state shipment production volumes distributed to BEA areas based on employment statistics. Additional volumes due to imports added to BEA areas having ports.
 - *Second Stage*: destination-state shipment consumption volumes distributed to BEAs based on employment and population shares.
- Disaggregation is conducted on the basis of minimum volume criteria to avoid unrealistic fragmentation of traffic flows.

Costs of Data Collection

- Not available

Geographical Coverage

The potential geographical coverage detail in TRANSEARCH for the spatial distribution of freight movement is as follows:

- Zip code
- County and Metropolitan area

-
- Business Economic Areas (BEAs)
 - State (*some province level detail for Canada*)

Frequency of Data Collection/Update

- Compiled and produced by Reebie Associates, Inc. on an annual basis since 1980.
- Annual data available about 15 months after end of period.

Limitations of TRANSEARCH®

- Accuracy of the data reported in TRANSEARCH® is a direct function of the accuracy and timeliness of the freight data sources from which it is developed.
- The reliability of freight statistics reported in the database cannot be verified.
- Because of the *Motor Carrier Data Exchange* program, some regional or community bias in estimation might exist due to a limited number of carriers providing truck data.
- TRANSEARCH provides detailed freight flow information only for the four major modes of transportation. Consequently, the database cannot be used to study shipment statistics on other modes like pipelines.
- TRANSEARCH does not provide information on the following shipments:
 - *International air shipments*
 - *International petroleum shipments*
 - *Unprocessed agriculture shipments*
 - *Mining shipments*

Contact Address

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Greenwich, CT 06836
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Fax: (203) 661-8886
www.reebie.com

TRANSPORTATION ANNUAL SURVEY (*MOTOR FREIGHT TRANSPORTATION / WAREHOUSING SURVEY*)

SPONSORING ORGANIZATION

- U.S. Bureau of the Census, U.S. Department of Commerce

AVAILABILITY

- Publicly available
- Transportation Annual Survey (TAS) reports released 12 months after the reference year
- TAS data for 1998 available online at the U.S. Census Bureau website:
 - <http://www.census.gov/svsd/www/tas.html>

DATABASE DESCRIPTION

The *Transportation Annual Survey (TAS)* is conducted annually by the U.S. Bureau of the Census to record comprehensive operating statistics of commercial motor freight transportation and warehousing industries. The survey is authorized by the United States Code: Title 13, which provides for mandatory responses to the surveys from sampled establishments.

The TAS is the only source that provides detailed data for firms offering *for-hire trucking* and *public warehousing services*. The data reported in this survey is used by a range of agencies and organizations for planning, policy development, and evaluation.

DATA COLLECTION

Performing Organization

- U.S. Bureau of the Census

Methodology

- Sources
 - Commercial Motor Freight Transportation and Public Warehousing Service companies (*Standard Industrial Classification, SIC 42*)

- **Sample Selection and Size**

- A sample of establishments providing commercial motor freight transportation and public warehousing services are selected from the Standard Statistical Establishment List (SSEL).
- The firms on the SSEL are stratified in terms of their annual revenue and kind of business using the statistics collected in the latest Census of Transportation.
- Firms lying above a minimum revenue cutoff are selected for the survey at a sampling probability of 1.0. These firms report statistics for all their industry *Employer Identification Numbers (EINs)*.
- The EINs with revenues below the minimum revenue cutoff are stratified based on the type of business and revenue. From each stratified category, a simple random sample of EINs is selected for the survey.
- The TAS collects statistics from approximately 2,500 establishments.

- **Procedure**

- Data for the TAS database is collected through surveying a sample of motor freight transportation and public warehousing services from the SSEL.
- The U.S. Bureau of the Census administers a mail-out/mail-back survey.
- The mail-out/mail-back surveys collect statistics on the operating revenue and expenses of the establishments by primary commodities handled, size of shipments in terms of *truckload* and *less-than-truckload (LTL)* shipments, and range of operation (*length of haul*) based on local- or long-range operation.

- **Freight Demand Characteristics**

- *Commodity*
 - Primary commodities handled
 - *Percentage of annual operating revenue*
- *Origin-Destination flows*
 - Revenue by Origin-Destination flows:
 - *U.S. – U.S.*
 - *U.S. – Canada*
 - *Canada – U.S.*
 - *Other*

-
- *Routing*
 - Not available
 - *Shipment characteristics*
 - Truckload and less-than-truckload (LTL) shipments
 - *Percentage of operating revenue*
 - *Transportation characteristics*
 - Truck mode
 - Truck fleet inventory based on:
 - Equipment type
 - *Trucks, truck-tractors, and full and semi-trailers*
 - Carrier type
 - *Total, specialty, and general carriers*
 - *Other*
 - Total operating revenue and operating revenue by source (*specialty and general carrier*) and range of operation (*local- and long-distance trucking*)
 - Total expenses and expenses by type (*specialty and general carrier*)

Quality Control Procedures

- The U.S. Bureau of the Census takes precautionary measures at all stages of data collection; processing and tabulation to minimize non-sampling errors in the TAS statistics.
- Sampling of single- and multi-unit firms is conducted based on a minimum revenue cutoff. All the firms above the cutoff have a sampling probability of one (*certainty establishments*). This reduces the sampling errors in the reporting of overall revenue of firms since firms that account for a large percentage of the total revenue are surveyed with certainty.
- The U.S. Bureau of the Census updates the sample of selected establishments periodically to include new *Employer Identification Numbers (EINs)*, also referred to as *births*, in an effort to provide up-to-date revenue statistics for all the currently active establishments.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- U.S. (nationwide)
- Operating revenue for freight movements between U.S., Canada, and Mexico is also reported.

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- The updating of the sample of establishments to include new establishments is a time consuming process for the U.S. Bureau of the Census. This delays the release of the TAS reports up to 12 months after the reference year.

Contact Address

U.S. Department of Commerce
Bureau of the Census
4700 Silver Hill Road
Washington, DC 20233-0001
www.census.gov

U.S. AIR CARRIER TRAFFIC AND CAPACITY DATA BY NONSTOP SEGMENT AND ON-FLIGHT MARKET (FORM 41: SCHEDULE T-100)

SPONSORING ORGANIZATION

- Federal Aviation Administration (FAA)

AVAILABILITY

- Publicly available
- Extracts of domestic data available about 3 months after date of filing of statistics
- Magnetic data tapes available directly from FAA
- International data withheld for 3 years

DATABASE DESCRIPTION

The U.S. Air Carrier Traffic and Capacity Data by Nonstop Segment and On-Flight Market database, commonly referred to as **Form 41**, is developed by the Federal Aviation Administration (FAA) on a monthly basis. The database captures detailed traffic, operating, and capacity statistics for large certificated air passenger carriers by *non-stop segment* and *on-flight market* movements.

Statistics are collected only from large certificated passenger carriers but both passenger and freight operations are reported in the database. The database, however, does not report statistics for all-cargo carriers.

DATA COLLECTION

Performing Organization

- Office of Airline Information (OAI), Bureau of Transportation Statistics
 - <http://www.bts.gov/oai/>
- Federal Aviation Administration (FAA)

Methodology

- Sources
 - Form 41 Large Certificated Air Passenger Carriers

-
- **Sample Selection and Size**
 - Air carrier traffic, operating, and capacity data are collected by the Office of Airline Information, Bureau of Transportation Statistics for all Form 41 Large Certificated Air Passenger Carriers.
 - Carriers belonging to the above category (*Form 41 large certificated*) have at least 60 seats or a payload capacity of more than 18,000 pounds.
 - Air carrier statistics for all-cargo carriers are not reported in the database.
 - Statistics for approximately 89 large certificated air passenger carriers are reported in the database without any sampling.

 - **Procedure**
 - The data reported in this database are compiled by the Federal Aviation Administration (FAA) from the monthly air carrier data collected by the Office of Airline Information (OAI) of the BTS.
 - All large certificated air passenger carriers are required by the BTS to report their traffic and operating statistics in the survey Form 41.
 - Schedule T-100 of Form 41 is used by the OAI to gather information on air carrier traffic statistics for *non-stop segment* and *on-flight market* movements.
 - *Non-stop segment* movements refer to traffic on a single non-stop segment of a flight.
 - *On-flight market* movements refer to traffic on one or more segments of a single flight.

 - **Freight Demand Characteristics**
 - *Commodity*
 - Not available
 - *Origin-Destination flows*
 - Not available
 - *Routing*
 - Nonstop segments:
 - Flight movement between Origin A and Destination C via Point B can be inferred from nonstop movements of A-B and B-C.
 - On-flight market:

-
- Shipment routing from Origin A to Destination D, flying from A to B and connecting to flight B-C-D, can be inferred from A-B and B-C-D markets.
 - *Shipment*
 - On-flight market
 - Enplaned freight and mail tonnage by carrier
 - Nonstop segment:
 - Revenue freight tonnage by carrier and equipment type
 - *Transport*
 - Nonstop segment:
 - *Departures*
 - *Aircraft hours*
 - Carrier
 - Equipment type

Quality Control Procedures

- Since the statistics are collected from Schedule T-100 of Form 41 reported by air carriers to the OAI, consistency and reliability of the air traffic data depends largely on the quality control procedures adopted by the OAI in the survey of large certificated air passenger carriers.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Statistics for all domestic operating air carriers with more than sixty seats or a payload capacity of more than 18,000 lbs.
- All foreign air carriers (*Form 41 large certificated*) having at least one *point of service* in the U.S. or one of its territories.

Frequency of Data Collection / Update

- Monthly

Limitations of Data Source

- The database reports routing information only for domestic air carrier movements. Routing information for international movements cannot be obtained from the database.
- The air traffic statistics reported are limited to large certificated air passenger carriers only. As a result of this limited coverage of carrier filings, the value of freight reported in the database is grossly inaccurate in markets where all-cargo carriers or hub-and-spoke systems are prevalent.

Contact Address

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Federal Aviation Administration (FAA)
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Washington, DC 20591
Tel: (202) 366-4391
Fax: (202) 366-3383
www.faa.gov

U.S. AIR FREIGHT ORIGIN TRAFFIC STATISTICS

SPONSORING ORGANIZATION

- The Colography Group, Inc.

AVAILABILITY

- Private
- Summary reports and extracts of database
- Annual reports available in May of following year

DATA SOURCE DESCRIPTION

The U.S. Air Freight Origin Traffic Statistics is a commercial freight database developed annually by *The Colography Group, Inc.* The database provides detailed information on domestic and export air cargo shipments at the 4-digit SIC industrial classification level. The database includes weight, volume, and number of shipments of air cargo freight for each 4-digit SIC industry code based on state, county, and “market area” of origin in the U.S.

The database combines the following air freight traffic data:

- Industrial production and use of expedited cargo
- Trends in air cargo production by 4-digit SIC code
- Geographical location of each industry

DATA COLLECTION

Performing Organization

- The Colography Group, Inc.

Methodology

- **Sources**
 - Government data sources:
 - *County Business Pattern Surveys* by the U.S. Department of Commerce for county industry location data
 - Colography surveys:
 - Establishments of firms generating air traffic shipments
 - Air cargo shippers

-
- **Sample Selection and Size**
 - Industries accounting for over 90% of total air cargo shipments are selected to be surveyed
 - A total of 73 industries with air cargo shipments were covered in the 1991 database
 - Air cargo shippers of shipments weighing less than 3,000 lbs and shippers carrying express mail shipments are selected
 - More than 125,000 air cargo shippers are surveyed annually
 - **Procedure**
 - The county industrial location patterns are determined from the *County Business Pattern Surveys* conducted by the U.S. Department of Commerce.
 - For each county, the industries representing more than 90% of the total air cargo shipments are selected and interviewed as part of the *Colography Plant Survey* program, to characterize air cargo shipments.
 - Shipment information on low weight freight shipments (less than 3,000 lbs) and express mail is gathered directly from interviews with air cargo shippers.
 - **Freight Demand Characteristics**
 - *Commodity*
 - 4-digit Standard Industrial Classification (SIC) codes
 - *Origin-Destination flows*
 - U.S. state, county, and “market area” of origin of air cargo shipments
 - Destination area reported as domestic or foreign shipment
 - *No further distinctions*
 - *Routing*
 - Not available
 - *Shipment*
 - Shipment classification
 - Standard air freight industry classifications

-
-
- Annual data
 - Weight
 - Value
 - Number of shipments
 - *Transport*
 - Air
 - *Other*
 - Employment data per 4-digit SIC codes
 - Number of industries by area

Quality Control Procedures

- To reduce the sampling error in the characterization of air cargo shipments, all industries that accounted for over 90% of the total shipments were selected for an interview.
- To minimize non-sampling errors, direct interviews were conducted with each selected establishment generating air cargo traffic as opposed to questionnaire surveys to prevent reporting errors by establishments.
- Detailed information is reported on air freight traffic data for a set of counties intrinsically tied to a U.S. airport—counties representing the hinterland area around a U.S. airport are grouped into *Colography market area* zones.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- Air freight traffic shipment data based on U.S. state, county, and “market area” of origin.
- Destination detail limited to domestic and foreign shipments:
 - Information on U.S. destination state for domestic and foreign country of destination for export air cargo shipments is not provided in the database.

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- The U.S. Air Freight Origin Traffic Statistics database does not provide any information on the final destination state or country for domestic or export shipments, respectively.

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- The database does not provide routing information for domestic or export air cargo shipments.
 - Interviewing a large number of industry establishments can be a time-consuming process.
 - The database does not provide information on cargo shipments based on airport or carrier.

Contact Address

The Colography Group, Inc.
1000 Johnson Ferry Road, Suite E 150
Marietta, GA 30068
Phone: (770) 565-0464
Fax: (770) 977-7383
www.colography.com

U.S. EXPORTS AND IMPORTS TRANSSHIPPED VIA CANADIAN PORTS (*ANNUAL REPORT*)

SPONSORING ORGANIZATION

- Maritime Administration (MARAD), U.S. Department of Transportation (USDOT)

AVAILABILITY

- Annual printed report available up to 18 months after closing period
- MS Access database format
 - Address requests to Sheila Brown, Data Coordination and Evaluation Group, Office of Statistical and Economic Analysis, U.S. Maritime Administration (Tel: 202-366-5178)
- Limited online data at the following web address:
 - http://www.marad.dot.gov/Marad_Statistics/index.html

DATA SOURCE DESCRIPTION

The U.S. Exports and Imports Transshipped via Canadian Ports database is developed by Maritime Administration (MARAD) of the U.S. Department of Transportation on an annual basis. The data source reports the total value and estimated weight of commodities classified at the 4-digit Harmonized System (HS) codes transshipped via Canada, by U.S. Customs Districts of Exit or Entry and foreign country of origin/destination.

The value of the U.S. export or import shipments transshipping via Canadian ports is calculated by assuming that the export or import shipments at a U.S. Customs District (*along or in close proximity to the Canadian border*) that do not use the water or air modes pass through the Canadian gateway.

DATA COLLECTION

Performing Organization

- U.S. Customs Service and U.S. Census Bureau
 - EA622 and IA245 annual U.S. import and export tapes
- MARAD (USDOT)
 - Extraction of data on U.S. imports and exports transshipped via Canadian ports from the EA622 and IA245 magnetic tapes

Methodology

- **Sources**
 - U.S. Bureau of the Census **EA-622** *Annual Export tape* and **IA245** *Annual Import tape*.

- **Sample Selection and Size**
 - Since the database is derived from the foreign trade data developed by the Census Bureau, import and export shipments of values less than \$1,251 and \$2,501, respectively, are not included in the database
 - Sample size (*export*): All export shipments of value greater than or equal to \$2,501
 - Sample size (*import*): All import shipments of value greater than or equal to \$1,251
 - Data on the number of records of import and export shipments included in the database is not available

- **Procedure**
 - MARAD collects the annual export and import tapes (EA622 and IA245) from the U.S. Bureau of the Census.
 - U.S. Customs Districts along or in close proximity to the Canadian border are identified.
 - Total value of import and export shipments for all modes and the value of import and export shipments for vessel and air at the 4-digit harmonized commodity codes are determined at the identified U.S. Customs Districts using the U.S. Bureau of the Census data.
 - Value of import and export shipments transshipping via Canadian ports is computed for each commodity code by calculating the difference between the total value for all modes and the vessel and air values. The difference provides the shipment values for each commodity code passing through Canadian ports by surface mode of transportation.
 - *Weight Estimation*
 - The weight of import and export shipments for each harmonized commodity code is computed by dividing the shipment value by a *dollar-per-kilogram* factor.
 - These factors are obtained from known commodity data on waterborne import/export shipments passing through U.S. ports of entry and exit.

-
- If dollar-per-kilogram factors are not available for waterborne shipments for a particular commodity, then the airborne shipment statistics are used.
 - If value-to-weight conversion factors are not available for any mode, only the shipment value is reported.
- **Freight Demand Characteristics**
 - *Commodity*
 - 4-digit HS commodity codes
 - *Origin/Destination flows*
 - Foreign country of origin/destination
 - U.S. Customs Districts of entry/exportation along or in close proximity to the Canadian border
 - *Shipment*
 - Value
 - Estimated weight
 - *Transport*
 - Surface modes (combined)

Quality Control Procedures

- To reduce the error in weight estimation, commodities such as self-propelled aircrafts, imported gold, diamonds, low-value-per-kilogram shipments, and re-exported commodities are not considered.
- Where major aberrations are observed in the estimated shipment characteristics, timely adjustments are made to the estimates based on cross-checks and verifications with the U.S. Bureau of the Census data.
- To develop a comprehensive data source of commodity shipments transshipped via Canada, no minimum shipment weight exclusions of shipments have been made in recent years.

Geographical Coverage

- Annual import and export trade statistics between U.S. Customs Districts and foreign countries transshipped via Canadian ports
 - *Schedule C*: Country classification based on International Organization for Standardization (ISO) prescriptions
- Import and export shipment characteristics determined at U.S. Customs Districts along or in close proximity to the Canadian border

Frequency of Data Collection and Update

- Annual

Limitations of Data Source

- The accuracy of the annual reports on the characteristics of U.S. Imports and Exports Transshipped via Canadian Ports is directly related to the accuracy of the data in the EA622 and IA245 tapes of the U.S. Bureau of Census.
- The data source cannot report the weight estimates of commodity shipments transshipped via Canadian ports if there is no available information on the dollar-to-weight conversion factors.
- Due to the U.S. – Canada Data Interchange program, shipment characteristics of U.S. exports transshipping via Canada are understated.
- Since the data collection and updates are conducted on an annual basis, fluctuations in commodity prices within the year are not accounted for in the calculation of weight estimates for import/export shipments transshipped via Canadian ports.

Contact Address

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robert.christensen@marad.dot.gov
www.marad.dot.gov

U.S. EXPORTS BY STATE OF ORIGIN OF MOVEMENT (“MISER” STATE OF EXPORT)

SPONSORING ORGANIZATION

- Massachusetts Institute for Social and Economic Research (MISER),
The University of Massachusetts, Amherst

AVAILABILITY

- Statewide *reports* and *data files* provided by MISER
 - <http://www1.miser.umass.edu/trade/statex.html>
- U.S. Department of Commerce’s *National Trade Data Bank (NTDB)* CD-ROM

DATA SOURCE DESCRIPTION

The U.S. Exports by State of Origin of Movement database, developed by *Massachusetts Institute for Social and Economic Research (MISER)*, is regarded as the best available database on exports based on state of origin of freight movement. This data source has been prepared by MISER since 1987 under agreement with the Foreign Trade Division at the U.S. Bureau of the Census. Under the agreement, MISER adjusts the Census data by filling in missing information on state origins of export shipments using a Census approved *Imputation Algorithm*.

The state of origin of movement is defined as the state where the merchandise begins its journey to the port of exportation and may not be the same as the state where the merchandise was manufactured, processed, or mined.

DATA COLLECTION

Performing Organization

- Massachusetts Institute for Social and Economic Research (MISER)

Methodology

- **Sources**
 - Magnetic Tapes EQ912 and EA917 (U.S. exports of domestic and foreign merchandise by state of origin) developed by the U.S. Bureau of the Census
- **Sample Selection and Size**
 - Shipments of value less than \$2,501 are not included in the sample

-
- No data available on the number of records of export shipments reporting their statistics to the U.S. Customs Service.
 - **Procedure**
 - MISER collects unadjusted EQ912 and EA917 data compiled by the U.S. Bureau of the Census from *Shipper's Export Declaration* and *Automated Export System* filings submitted to the U.S. Customs.
 - The MISER *Imputation Algorithm* is applied to the unadjusted EQ912 and EA917 data sources to fill in missing information on the state of origin of movement of goods classified at the 2-digit SIC codes. The algorithm allocates records with unknown origin states and industries to known states and industries.
 - **Freight Demand Characteristics**
 - *Commodity*
 - 2-digit SIC codes
 - *Origin-Destination flows*
 - State of origin of movement of export shipment
 - Foreign country of destination
 - *Routing*
 - Not available
 - *Shipment*
 - Total value
 - *All modes combined*
 - Total value and weight
 - *Vessel and air modes*
 - Containerized weight and value
 - *Vessel*
 - *Air*
 - *Transport*
 - Vessel
 - Air
 - *All other*

Quality Control Procedures

- Improvements to the *MISER Imputation Algorithm*:

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- Allocating *Low-Value Shipments* to states and industries without regard to mode of transportation
 - No allocations of shipments to industries having no known shipment transport to that country
 - Developing a *Closeness of Mode* matching process which takes into account the percentage of shipments moving by each mode of transport and allocating shipments to origin states based on these percentages
 - Reducing the lag time in data development and reporting relative to the time of actual shipment
 - Development of the *Accelerated Export Enhancement System (AXES)* in 1992 for online access to the latest U.S. export database

Data Coverage

- Quarterly and annual data of export trade statistics with over 200 countries worldwide
 - *Schedule C*: Country classification based on International Organization for Standardization (ISO) prescriptions
- Coverage of export commodities classified at the 2-digit SIC for each individual state and U.S. as a whole

Frequency of Data Collection and Update

- The MISER database of U.S. Exports by State of Origin of Movement is developed on a **quarterly** and **annual** basis with a lag time of **3 months** from the actual shipment time.

Limitations of Data Source

- The MISER database overestimates the exports by states with major port facilities while underestimating the exports from other states. This is particularly significant for agricultural commodities.
- The allocation of records to states with unknown origins uses experimental imputation algorithms that may not always provide reliable estimates that can be erratic over time.
- The production state of the merchandise cannot be determined from the database since it only provides the state where the merchandise begins its export journey to a port of exportation.
 - The production state may not necessarily be the origin state where the export journey of the merchandise begins.

-
- The limitations of the U.S. Census database on exports of domestic and foreign merchandise also apply to this database since it is developed from the U.S. exports data supplied by the U.S. Census Bureau.

Contact Addresses

MISER
128 Thompson Hall
University of Massachusetts
Box 37515
Amherst, MA 01003-7515
Tel: (413) 545-3460
Fax: (413) 545-3686

<http://www.umass.edu/miser/>

U.S. Bureau of the Census
Foreign Trade Division
Washington, DC 20233
Tel: (301) 457-2311
Fax: (301) 457-4615

<http://www.census.gov/foreign-trade/www/>

U.S. EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE BY STATE/REGION/PORT (*STATE OF EXPORT TAPES*)

SPONSORING ORGANIZATION

- U.S. Bureau of the Census — *Data User Services division*

AVAILABILITY

- Magnetic tapes available for purchase on subscription or on an ad-hoc basis (4 months after end of period – *month* or *year*)

DATA SOURCE DESCRIPTION

The *U.S. Exports of Domestic and Foreign Merchandise* database presents export trade statistics in terms of Schedule B Harmonized Commodity classification (HS) codes. Detailed information is provided on origins of movement by state, region, and port of export, country of destination, mode of transportation, shipment weight, and value.

This data source is available in three separate magnetic tape formats:

- U.S. exports of domestic and foreign merchandise by state of origin:
 - EQ 912 – *Quarterly*
 - EA 917 – *Annual*
- U.S. exports of domestic and foreign merchandise by region of origin:
 - EQ 932 – *Quarterly*
 - EA 937 – *Annual*
- U.S. exports of domestic and foreign merchandise by district and port of exportation:
 - EQ 952 – *Quarterly*
 - EA 957 – *Annual*

DATA COLLECTION

Performing Organization

- U.S. Customs Service

Methodology

- **Sources**
 - Merchandise export shipment data collected by U.S. Customs at ports of exportation from export shippers
- **Sample Selection and Size**
 - *Shipment sampling*
 - Postal shipments with a value less than \$501 and all other export shipments with commodity values less than \$2,501 (*Low-value shipments*) are not reported in the *Automated Export Systems* (AES) and *Shipper's Export Declarations* (SEDs).
 - Export data for these shipments are estimated from historical values and individual country totals and do not include commodity details.
 - Shipments with a U.S. origin and destined for a U.S. destination, passing through a foreign country, are not considered in the SED.
 - Merchandise not moving as cargo under a *bill of lading* or *air waybill*, and not requiring a validated export license are not sampled.
 - Information on the number of records of export shipments reporting their statistics to the U.S. Customs Service is not available.
- **Procedure**
 - Export shipment data are collected by the U.S. Customs Service at Customs Districts and ports of export from shippers, who are required to file statistics on their export shipments. U.S. Customs collects data from shippers by the following two methods:
 - Automated data collection procedure: *Automated Export System* (AES)
 - *Shipper's Export Declaration* (SED) paper forms
- **Freight Demand Characteristics**
 - *Commodity*
 - EQ 912 and EA 917
 - 2-digit Standard Industrial Classification (SIC)

-
- EQ 932 and EA 937
 - 4-digit Standard International Trade Classification (SITC - Revision 3)
 - *Origin-Destination flows*
 - State of origin of export shipment
 - Region of origin of export shipment
 - Foreign country of destination
 - *Routing*
 - U.S. Customs Districts and Ports of Exportation
 - *Shipment*
 - Total value:
 - *All modes*
 - Total value and weight:
 - *Vessel*
 - *Air*
 - Containerized weight and value:
 - *Vessel*
 - *Air*
 - *Transport*
 - Vessel
 - Air
 - All other

Quality Control Procedures

- Automated reporting of exports:
 - Mandatory electronic filing of export declarations
- Increased security efforts and infrastructure facilities at border locations to better control data collection procedures
- Increased awareness of Zone Operators and Customs Officials of the importance of statistical reporting for zonal exports
- Online validation checks in automated systems such as AES
- Exporter Education Program (EEP), Customs Port Briefings, and AES user meetings

Costs Incurred in Data Collection

- *National Council on International Trade Documentation (NCITD):*

-
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- Cost incurred by the U.S. Census Bureau in preparing and processing the SED form is approximately \$18/form.
 - *Exporter Magazine*:
 - Cost incurred by the U.S. Bureau of the Census in preparing and processing an SED form is approximately \$75/form.

Geographical Coverage

- Quarterly and annual data of export trade statistics with approximately 232 countries worldwide
 - *Schedule C*: Country classification based on International Organization for Standardization (ISO) prescriptions
- Merchandise exports coverage based on:
 - 2-digit state and 3-digit region codes of origin in the U.S
 - U.S. Customs Districts and Ports of Exportation
 - *Schedule D*: Classification of U.S. Customs Districts and Ports for Foreign Trade Statistics
 - Foreign Trade Zone (FTZ) areas

Frequency of Data Collection and Update

- Quarterly
- Annual

Limitations of Data Source

- Inaccurate estimation of *Low Value Shipments* of export
- Reporting errors by exporters and their agents
- Incorrect monthly export statistics due to late filings
- Incorrect estimation of U.S. export merchandise moving through Canada to other countries
- Overestimation of exports by major port states and underestimation of exports from other states in the U.S.

<u>Contact Address</u>
U.S. Bureau of the Census Foreign Trade Division, Washington, DC 20233 Tel: (301) 457-2311 Fax: (301) 457-4615 http://www.census.gov/foreign-trade/www/

U.S. IMPORTS/EXPORTS OF MERCHANDISE ON CD-ROM

SPONSORING ORGANIZATION

- U.S. Bureau of the Census — *Data User Services division*

AVAILABILITY

- The U.S. Imports/Exports of Merchandise CD-ROMs are available for purchase on subscription or on an ad-hoc basis (4 months after end of period).

DATA SOURCE DESCRIPTION

The U.S. Imports/Exports of Merchandise database is the most comprehensive source of foreign trade statistics. It is developed by the U.S. Bureau of the Census with the freight trade data inputs from the U.S. Customs Service. The database documents in detail the movement of different commodities across U.S. borders (*by weight and value*) and by mode of transportation.

The data source is available from the U.S. Bureau of the Census on two CD-ROMs:

- U.S. Imports of Merchandise
- U.S. Exports of Merchandise

DATA COLLECTION

Performing Organization

- U.S. Customs Service
 - Automated data collection systems (AES, ABI)
 - *Entry summary* and *Shipper's Export Declaration (SED)* forms (paper documents)

Methodology

- **Sources**
 - Import and export shipment data collected by U.S. Customs at ports of entry and export from *Customs Brokers* and *Shippers*.

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- **Sample Selection and Size**
 - *Shipment sampling*
 - Imported shipments with commodity values less than \$1,251 are not reported in the U.S. Customs entry summary form 7501.
 - Exported shipments with commodity values less than \$2,501 are not reported in the SED form 7525-v except for mail shipments.
 - Mail shipments with value less than \$500 are not sampled.
 - For a mixture of exported shipments with commodity values less than or equal to \$2,501 and commodity values greater than \$2,501, those commodities having value less than \$2,501 are not selected.
 - Shipments traveling from a U.S. origin to another U.S. destination through a foreign country are not considered for the SED.
 - Merchandise not moving as cargo under a *bill of lading* or *air waybill*, and not requiring a validated export license are not sampled.
 - Shipments to the U.S. Armed Forces and U.S. trade shipments with U.S. possessions are not reported.
 - Information on the number of records of import and export shipments of value greater than \$1,251 and \$2,501 respectively that report their statistics to the U.S. Customs Service is not available.
 - **Procedure**
 - *U.S. Imports of Merchandise*
 - Automated data collection procedure using the U.S. Customs Service *Automated Broker Interface (ABI)*
 - U.S. Customs Service paper forms: *Entry Summary Form 7501*, *Warehouse withdrawal forms*, and *Foreign Trade Zone forms*
 - Forms to be filled only by a licensed *Customs Broker*
 - Forms to be submitted to the U.S. Customs Service within 10 working days of submission of the *entry/immediate delivery form*
 - *U.S. Exports of Merchandise*
 - Export shipment statistics collected by the U.S. Customs Service using the *Automated Export System (AES)*

-
- U.S. Customs Service export data collection form: *Shipper's Export Declaration (SED) Form 7525*
 - SEDs for postal shipments
 - SEDs for all other shipments
 - **Freight Demand Characteristics**
 - *Commodity*
 - 10-digit Harmonized System (HS) code classification:
 - Schedule B for exports (by the U.S. Census)
 - Harmonized Tariff Schedule Codes for Imports (by the U.S. International Trade Commission)
 - Standard Industrial Classification (SIC)
 - Bureau of Economic Analysis (BEA) end-use commodity category
 - USDA product codes
 - Advanced Technology Codes (ATCs)
 - *Origin-Destination flows*
 - Export country of destination
 - Import country of origin
 - *Routing*
 - U.S. Customs Districts of exit for exports
 - U.S. Customs Districts of unloading and entry for imports
 - *Shipment*
 - Value and quantity
 - *All modes*
 - *Vessel and air separately*
 - Shipping weight
 - *Vessel and air*
 - *Transport*
 - Vessel
 - Air
 - All modes (e.g., *vessel, air, truck, rail, air mail, and parcel post*)
 - *Other*
 - Cost, Insurance and Freight (C.I.F) value of imports (vessel, air)
 - Import charges of merchandise (vessel, air)
 - Total number of filed shipment documents
 - U.S. import duty on shipments

Quality Control Procedures

- Automated reporting of exports (*AES*) and imports (*ABI*)
- Increased security efforts and infrastructure to better control data collection procedures at border areas
- Increased awareness of zone operators and customs officials of the importance of statistical reporting for zonal imports and exports
- On-line validation checks of automated systems like *AES* and *ABI*
- Exporter education program (*EEP*)
- Customs port briefings
- *AES* user meetings

Costs Incurred in Data Collection

- *National Council on International Trade Documentation (NCITD)*:
 - Cost incurred by U.S. Census Bureau in preparing and processing the Shipper's Export Declaration (*SED*) form is approximately \$18/*SED*.
- *Exporter Magazine*:
 - Cost incurred by the U.S. Census Bureau in preparing and processing one *SED* form is approximately \$75.

Geographical Coverage

- Monthly and annual foreign trade statistics with approximately 232 countries worldwide:
 - *Schedule C*: Country classification based on International Organization for Standardization (*ISO*) prescriptions
- Covers over 45 U.S. Customs Districts:
 - *Schedule D*: Classification of U.S. Customs Districts and Ports for Foreign Trade Statistics
- Coverage of imports and exports at Foreign Trade Zone (*FTZ*) areas

Frequency of Data Collection and Update

- The U.S. Imports/Exports of Merchandise CD-ROMs are compiled for each statistical month.
- The CD-ROMs also provide year-to-date totals of import and export trade.
- The December CD-ROMs for import and export trade provide the totals for the year.

Limitations of Data Source

- Poor estimation of low value import and export trade shipments

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- Under-coverage of foreign merchandise entering the Foreign Trade Zone (FTZ) areas
 - Possible non-sampling errors in reporting of statistics by importers, exporters, and their agents
 - Problems in accurately estimating statistics of transit freight conforming to United Nations (U.N.) guidelines
 - Incorrect monthly statistics of exports and imports due to late filings of paper documents

Contact Address:

U.S. Bureau of the Census (USBOC)
Foreign Trade Division
Washington, DC 20233
Tel: (301) 457-2227
Fax: (301) 457-2647

<http://www.census.gov/foreign-trade/www/>



U.S. WATERBORNE GENERAL IMPORTS (EXPORTS) AND INBOUND (OUTBOUND) INTRANSIT SHIPMENTS

SPONSORING ORGANIZATION

- Bureau of the Census, U.S. Department of Commerce

AVAILABILITY

- Available for purchase (*subscription* or *ad hoc*) around 4 months after close of period
- Database information also included in U.S. Waterway Data CD-ROM available from Bureau of Transportation Statistics (BTS) or the U.S. Army Corps of Engineers

DATABASE DESCRIPTION

The U.S. Waterborne General Imports (Exports) and Inbound (Outbound) Intransit Shipments database is developed by the U.S. Bureau of the Census to report detailed shipment statistics concerning U.S. waterborne imports and exports with foreign trade partners.

The database is available monthly (TM) or on an annual (TA) basis on magnetic tapes, providing comprehensive port-to-port trade flow statistics of U.S. foreign trade and intransit shipments categorized by commodity, vessel type, and country detail.

DATA COLLECTION

Performing Organization

- U.S. Bureau of the Census
- U.S. Customs Service

Methodology

- **Sources**
 - U.S. Customs Entry Summary (Form 7501) for import shipments
 - Shipper's Export Declarations (SEDs) for export shipments
- **Sample Selection and Size**
 - The database captures waterborne shipment statistics (*government* or *otherwise*) between U.S. Customs' territories and foreign countries, except for low-value shipments.

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- Shipments with a value less than \$2,501 for exports and less than \$1,251 for imports are not reported in the database.
 - The low-value shipment statistics are estimated without commodity detail from historical statistics.
 - Information on the number of records of import and export shipments of value greater than or equal to \$1,251 and \$2,501 respectively, is not available.
- **Procedure**
 - Waterborne import shipment statistics are collected by the U.S. Customs Service at ports of entry using the U.S. Customs Entry Summary Form 7501.
 - The U.S. Customs Entry Summary Form 7501 collects detailed information from all import shipments with a value greater than \$1,251. A trained specialist (*licensed customs broker*) has to complete and return Form 7501 to U.S. Customs within 10 working days of the filing of the 3461 Entry/Immediate delivery form.
 - A sample U.S. Customs Entry Summary Form can be found at:
 - http://www.ar.danzas.com/downloads/guide/7501_Inst.pdf
 - Detailed waterborne export shipment statistics are collected from the Shipper's Export Declarations filed by shippers or freight forwarders electronically or in hard-copy forms.
 - The Shipper's Export Declarations hard copy Form 7525-V is the paper version used by U.S. Customs for collecting export shipment statistics.
 - The electronic version of the Shipper's Export Declarations, the Automated Export System (AES), is offered by the U.S. Census Bureau and the U.S. Customs Service.
 - **Freight Demand Characteristics**
 - *Commodity*
 - SITC and 6-digit Harmonized (HS) commodity codes
 - *Origin-Destination*
 - Foreign country of origin/destination
 - Domestic origin/destinations not reported
 - *Routing*
 - U.S. Customs Ports (USBOC *Schedule D* classification) to Foreign Ports (USBOC *Schedule K* Classification)

-
- *Shipment*
 - Weight
 - Value
 - *Transport*
 - Water mode
 - Type of vessel (*liner, non-liner* or *tanker*)
 - *Other*
 - Import freight charges
 - Percentage containerization

Quality Control Procedures

- The U.S. Customs Service, with assistance from the U.S. Census Bureau, ensures that the U.S. Customs Entry Summary and the Shipper's Export Declarations are filed only by trained personnel to minimize non-sampling errors in collecting shipment statistics.
- Exporters and their agents are required to maintain copies of their shipping documents for at least a period of 5 years to ensure readily available and detailed information for reporting purposes.
- The electronic *Automated Export System (AES)* ensures faster completion of the filing process of the Shipper's Export Declarations. The AES also helps reduce non-sampling errors in data collection compared to hard-copy forms, which can be lost during shipment from the shipper's location to the port of export.

Costs Incurred in Data Collection

- Not available

Geographical Coverage

- U.S. imports/exports between all U.S. Customs territories and foreign countries, including intransit shipments

Frequency of Data Collection and Update

- Monthly
- Annual

Limitations of Data Source

- The data source does not report U.S. state or city of origin/destination for export/import shipments.

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- The database does not provide shipment statistics for low-value import or export shipments. The latter is estimated from historical data without commodity detail. The presence of a significantly large percentage of air traffic in the low-value shipments leads to inaccurate estimates of low-value waterborne import and export shipments.

Contact Address

U.S. Bureau of the Census
Foreign Trade Division
4700 Silver Hill Road
Washington, DC 20233-0001
Tel: (301) 457-2317
Fax: (301) 457-1237

<http://www.census.gov/foreign-trade/www/>

VEHICLE INVENTORY AND USE SURVEY (VIUS)

SPONSORING ORGANIZATION

- Bureau of the Census, U.S. Department of Commerce

AVAILABILITY

- Public
- PDF document files released on the Internet
 - <http://www.census.gov/econ/www/viusmain.html>
- Hard copy files available for U.S.
- Microdata CD-ROM

DATABASE DESCRIPTION

The Vehicle Inventory and Use Survey, VIUS (formerly *Truck Inventory and Use Survey*) is conducted by the U.S. Bureau of the Census as part of its quinquennial Economic Census. The survey captures the physical and operating characteristics of private and commercial U.S. truck population licensed (*registered*) as of July 1 of each survey year. The survey does not consider buses, ambulances, automobiles, motorcycles and vehicles owned by the federal, state, or local governments.

The truck inventory data from the VIUS are used by a number of agencies and state departments for developing transportation plans for the future, analyzing highway safety issues, environmental impacts of emissions, studies on vehicle performance, fuel demands, and fuel conservation practices of trucking industries.

DATA COLLECTION

Performing Organization

- The U.S. Bureau of the Census

Methodology

- **Sources**
 - Mail-out/mail-back Vehicle Inventory and Use Survey questionnaire forms (TC 9501/9502) sent to a random sample of truck owners.

- **Sample Selection and Size**

- A random sample of private and commercial trucks is selected from the population of registered trucks for each of the 50 states and the District of Columbia.
- The sample selection procedure for the VIUS consists of selecting an *initial* and a *supplementary* sample of trucks registered in the 50 states and the District of Columbia.
- The sampling of registered trucks is carried out by segmenting the vehicle population based on the state of registration, body type, and the gross vehicle weight (GVW).
- From the above population of segmented vehicles, a random sample of vehicles is selected for the mail-out/mail-back questionnaire survey.
- For the 1997 VIUS, the sample was comprised of a total of 131,000 trucks selected from a population of nearly 75 million trucks in the U.S.

- **Procedure**

- The initial phase of the data collection methodology for the VIUS consists of selecting *initial* and *supplementary* samples of trucks from the population.
- The sample selection is done in two phases so that trucks that have their mailing address different from the state of registration can be included in the VIUS.
- The physical and operating characteristics of trucks selected are gathered by mailing the VIUS questionnaire forms to the respective registered owners.

- **Freight Demand Characteristics**

- *Commodity (operational characteristics)*
 - Annual mileage reported as percentage values for the following classifications:
 - Twenty-six standard commodity categories, including non-freight shipments (*personal and empty-haul*)
 - Seventeen categories of hazardous materials
- *Origin-Destination*
 - Not reported
- *Routing*
 - Not reported

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- *Shipment*
 - Not reported
 - *Transport (operational characteristic)*
 - Percentage of annual miles:
 - Outside *base state*
 - Range of operation
 - *Local (50 miles or less)*
 - *Short-range (51 to 100 miles)*
 - *Short-range medium (101 to 200 miles)*
 - *Long-range medium (201 to 500 miles)*
 - *Long-range (>500 miles)*
 - *Other*
 - Physical characteristics:
 - Date of purchase
 - Gross vehicle weight (GVW)
 - Body type
 - *Single unit*
 - *Tractor-trailer*
 - Length
 - Number of axles
 - Engine type
 - Operational characteristics:
 - Major use (*type of business*)
 - Weeks operated
 - Miles driven
 - *Annual*
 - *Lifetime*
 - Operator classification
 - Accident incidence

Quality Control Procedures

- Starting from the year 1997, the VIUS has started employing the two-phase sampling procedure consisting of *initial* and *supplementary* samples of the U.S. truck population. The two-phase sampling procedure allows for the inclusion of the physical and operational data of truck operators that have their mailing address different from the state of registration.

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- Precautionary steps were taken at the data collection, processing, and tabulation stages of the database so that non-sampling errors in statistical data are minimized.
 - Adjusting for **unit nonresponses** (*unreturned questionnaires*)
 - **Reweighting procedure:** The physical and operating characteristics of trucks corresponding to unit nonresponses were determined by computing a nonresponse adjustment factor for each truck category:
 - Non-response adjustment factor, $\eta = \frac{S}{R}$
 S = Sample size within each truck category
 R = Number of successful responses
 - Adjusting for **item non-responses** (*partial non-responses or failures in computer edits*)
 - **Imputing procedure:** The missing value of a particular truck characteristic is replaced by the average value of the data from successful responses from all the other trucks belonging to the same category.
 - The name of the database was changed from *Truck Inventory and Use Survey* to *Vehicle Inventory and Use Survey* to account for future expansions in the type of vehicles to be included in the database, including automobiles and buses.
 - Compared to statistics reported in the previous VIUS/TIUS databases, the present VIUS provides additional data on the transport of hazardous materials.

Costs of Data Collection

- Not available

Geographical Coverage

- U.S. nationwide truck inventory data
 - 50 states
 - District of Columbia

Frequency of Data Collection and Update

- Every 5 years (for years ending in “2” and “7” as part of the Economic Census)

Limitations of Data Source

- Since the VIUS database is developed by conducting surveys of a sample of trucks, the characterization of the truck fleet for the entire U.S. truck population is always subject to sampling errors.

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- In the reweighting procedure employed for *unit nonresponses*, there can be significant statistical bias in the estimate of the truck characteristics if the characteristics of nonresponse trucks are different from the characteristics of the trucks for which responses were received.
 - The imputation procedure for *item nonresponses* is carried out separately only for length, average weight, and the annual miles of trucks. All other truck characteristics are provided in the *not-reported* category.
 - The VIUS database is only developed on a 5 year basis and consequently, the database cannot give information on frequent changes (*for e.g., yearly changes in truck population*) occurring in the U.S. national truck fleet.

Contact Address

U.S. Department of Commerce
Bureau of the Census
4700 Silver Hill Road
Washington, DC 20233-0001
www.census.gov



WATERBORNE COMMERCE AND VESSEL STATISTICS

SPONSORING ORGANIZATION

- U.S. Army Corps of Engineers

AVAILABILITY

- Annual data available approximately 18 months after the end of the year
- Printed report and data tape of individual port tonnage by:
 - Commodity
 - Shipment type
 - Foreign / domestic
 - Coastwise
 - Internal
 - Local
 - Direction
 - Inbound / outbound
 - Upbound / downbound
- Printed report and data tape for individual ports summarizing information on:
 - Vessel trips by draft
 - Vessel type
 - Direction of movement
- Public domain database in diskette and printed format reporting commodity tons by commodity groups for state-to-state origin-destination flows:
 - *\$5 per data file*
 - *\$15 per printed data source*
- State and principal ports tonnage summary
- Transportation lines of the United States
 - Location
 - Vessel characteristics
 - Area of operation
- Waterborne commerce and vessel statistics data also reported in the U.S. Waterway Data CD-ROM provided by:
 - BTS and the U.S. Army Corps of Engineers.
- Information on *Waterborne Commerce and Vessel Statistics* data reported by the U.S. Army Corps of Engineers is available at the following web address:
 - <http://www.iwr.usace.army.mil/ndc/prod.htm#NDC%20Data%20Bases>

DATABASE DESCRIPTION

The Waterborne Commerce and Vessel Statistics database, developed annually by the U.S. Army Corps of Engineers: Navigation Data Center (NDC), provides comprehensive shipment statistics data for domestic and foreign waterborne trade flows across U.S. ports and waterways. The database is the only comprehensive source of data for both domestic and foreign waterborne trade shipments in and out of the United States.

Domestic shipment data are collected specifically for the database by the Corps of Engineers from *Vessel Operating Reports* obtained from domestic carriers. Foreign trade statistics are directly obtained from the U.S. Census Bureau's U.S. waterborne import and export trade statistics. Further enhancements are, however, made to the database in terms of vessel movements.

DATA COLLECTION

Performing Organization

- U.S. Army Corps of Engineers

Methodology

- **Sources**
 - Domestic freight carriers who report their vessel operations and cargo activity directly to the Corps of Engineers in the form of *Vessel Operations Reports*
 - U.S. Bureau of the Census: *U.S. Waterborne Exports and General Imports*
- **Sample Selection and Size**
 - Domestic waterborne shipment statistics are collected by the U.S. Army Corps of Engineers from the *Vessel Operations Reports* submitted by all domestic carriers at U.S. port locations. Accordingly, there is no sampling involved in the data collection for domestic waterborne trade flow statistics.
 - A total of more than 1,500 domestic vessel operating companies provide their shipment statistics in the *vessel operations reports* submitted to the U.S. Army Corps of Engineers
 - Foreign waterborne trade flow statistics are developed from the U.S. Bureau of the Census data source on U.S. waterborne general imports and exports of merchandise.

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- Waterborne import and export shipments of value less than \$1,251 and \$2,501 respectively are not included in the survey by the U.S. Customs Service.
 - Information on the number of records of waterborne import and export shipments reporting their statistics to the U.S. Customs is not available.
- **Procedure**
 - Domestic waterborne shipment statistics are collected by the U.S. Army Corps of Engineers using the Corps of Engineers Form 3925 (Vessel Operation Report: Statement of Freight and Passengers Carried).
 - The Corps of Engineers ENG Form 3925 can be accessed at:
 - <http://www.iwr.usace.army.mil/ndc/wcsc/pdf/eng3925/ENG3925.pdf>
 - Owing to the large volume of U.S. foreign trade flows, the Corps of Engineers does not conduct surveys of importing and exporting carriers.
 - Foreign trade flow data are compiled annually by the U.S. Bureau of the Census from the U.S. Customs Entry Summary and Shipper's Export Declarations in the *U.S. Waterborne Exports and General Imports* database. The Corps of Engineers uses the latter data, but enhances the vessel movements information in developing the waterborne commerce statistics database.
 - **Freight Demand Characteristics**
 - *Commodity*
 - 4-digit Commodity Classification (domestic waterborne trade flows)
 - *Origin-Destination*
 - Master tape:
 - Dock-to-dock flows
 - Port summary report:
 - Port throughput
 - Harbor throughput *or*
 - Channel segment throughput
 - Public domain database:
 - States of origin and destination of domestic shipments
 - No foreign country detail reported in the database

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- *Routing*
 - Only available for a few specific route elements
 - Routing information inferred from the database from the Origin/Destination shipment flows
 - *Shipment*
 - Weight (tons)
 - *Transport*
 - Waterborne
 - *Other*
 - Number of vessels information based on:
 - Direction of flow
 - Type of vessel
 - Draft

Quality Control Procedures

- The U.S. Army Corps of Engineers has increased its efficiency in processing the domestic shipment filings (*Vessel Operation Reports*) to avoid delays in reporting waterborne commerce statistics to the U.S. Congress and other key federal agencies.
- Vessel Operation Reports from all the domestic carriers ensures that the domestic waterborne shipment statistics reported in the database are accurate estimates without any sampling errors (*bias*) in the annual estimates.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- U.S. imports/exports between all U.S. Customs territories and foreign countries, including intransit shipments

Frequency of Data Collection / Update

- Annual

Limitations of Data Source

- The database does not report foreign country detail for international trade shipments. Consequently, foreign-trade flow statistics between the U.S. and a foreign country of interest cannot be obtained from the database.
- The database does not provide routing information for domestic state-to-state shipments. Dock-to-dock flow data are available only in the Master Tape, which is proprietary, and not available to the public.

Contact Address

U.S. Army Corps of Engineers
Products and Services Office
Waterborne Commerce Statistics Center
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WORLDWIDE (NORTH AMERICAN) AIRPORT TRAFFIC REPORT

SPONSORING ORGANIZATION

- Airports Council International (ACI)
- ACI (North America) for worldwide (North American) Airport Traffic Data

AVAILABILITY

- Commercial data source available for purchase
 - Printed format
 - Excel + printed format
 - Mini CD-ROM + printed format
- Worldwide Airport Traffic Report data can be purchased from the ACI website:
 - <http://www.airports.org/e-commerce/memb.htm>
- North American Airport Traffic Report can be purchased from the ACI-North America website:
 - <https://www.aci-na.com/>

DATABASE DESCRIPTION

The *Worldwide Airport Traffic Report* is a commercial data source developed annually by the Airports Council International (ACI) based in Geneva, Switzerland. The database provides comprehensive information on annual passenger (*person enplanements* and *deplanements*) and freight traffic (*tons of loaded/unloaded freight* and *mail*) volumes for all the major airports in the world surveyed by the ACI.

In addition, the database also reports useful operational statistics in terms of total annual aircraft movements (*landing* and *take-off*) at each major airport surveyed.

DATA COLLECTION

Performing Organization

- Airports Council International (ACI)

Methodology

- Sources
 - Airports responding to the annual survey conducted by the ACI

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- **Sample Selection and Size**
 - The *Worldwide Airport Traffic Report* includes traffic statistics for major international airports throughout the world.
 - Major airports across the world are categorized into the following geographical regions for the survey:
 - North America
 - Europe
 - Africa, Asia, Latin America/Caribbean, and the Pacific
 - The data source provides monthly and annual passenger, freight, and operational statistics for at least 720 major airports (*regular reporting airports*) worldwide. Information on the number of airports surveyed in each geographical region can, however, be obtained from the commercial database available online for purchase.

 - **Procedure**
 - The passenger, freight, and operational statistics are collected through mail-out/mail-back surveys.
 - Separate forms are mailed out to airports in North America, Europe, and Africa, Asia, Latin America/Caribbean, and the Pacific to capture particular regional data at airports located in different geographical areas.

 - **Freight Demand Characteristics**
 - *Commodity*
 - Freight (*including express freight*)
 - Mail
 - *Origin-Destination*
 - Domestic/International flights
 - *Routing*
 - Airport
 - *Shipment*
 - Total weight by direction:
 - *Enplanement*
 - *Deplanement*
 - *Transportation*
 - Air mode
 - *Other*

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- Aircraft movements (*domestic* and *international*)
 - General aviation aircrafts
 - Type of commercial operation
 - *Passenger* and *Combi aircraft* (*passenger* and *cargo*)
 - *All-cargo aircraft*

Quality Control Procedures

- By designing specific survey forms for different geographical areas, the needs of airports located in these regions are met and non-sampling errors in data collection are minimized.
- The definitions for all the forms, however, are standardized. This ensures that the responses from various regions can be integrated with ease and efficiency during the data processing phase.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Worldwide

Frequency of Data Collection and Update

- Monthly
- Annually

Limitations of Data Source

- Inconsistencies exist in the database in the reporting of transshipment statistics.

Contact Addresses

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WORLD SEA TRADE SERVICE

SPONSORING ORGANIZATION

- DRI/McGraw-Hill (Lexington, Massachusetts)

AVAILABILITY

- Quarterly reports and data extracts available for purchase.

DATABASE DESCRIPTION

The World Sea Trade Service database is an advanced econometric model developed by DRI/McGraw-Hill Inc. for forecasting ocean traffic on major international trade routes. DRI combines world trade statistics with sophisticated economic and trade models to generate historical and forecast shipment statistics across 1,000 ocean trade corridors around the world. Forecasts of commodity flows are reported in terms of short-term quarterly estimates for bi-annual periods and long-term estimates.

DATA COLLECTION

Performing Organization

- DRI/McGraw-Hill

Methodology

- **Sources**
 - Country-based waterborne foreign-trade data sources
- **Sample Selection and Size**
 - The World Sea Trade Service database is developed from waterborne shipment data reported in country-based foreign trade data sources. Because the data collection process does not involve any additional surveys of carriers, there is no sampling procedure involved in the database development.
 - All waterborne shipments included in the country-based foreign trade data sources are included in the database.
 - A total of more than 1000 trade corridors are covered in the reporting of worldwide sea trade statistics.

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- Information on the sample sizes of waterborne shipments reported in the foreign trade data sources providing data for the development of the world sea trade service database is not available.
 - **Procedure**
 - Trade flow data gathered from individual country-based foreign waterborne trade statistics are combined with advanced econometric models to generate forecasts of ocean traffic flows across major international trade routes.
 - Historical and forecast ocean traffic statistics are developed for approximately 1,000 international trade routes based on:
 - *Cargo type*
 - *Type of service*
 - *Size*
 - **Freight Demand Characteristics**
 - *Commodity*
 - 20 SITC commodity group classification
 - *Origin-Destination*
 - Foreign country of origin and destination
 - *Routing*
 - Trade route details based on:
 - Coastal
 - Country *or*
 - Regional pairs
 - Port detail reported for certain trade routes
 - *Shipment*
 - Total weight
 - Number of container-loads
 - *Transport*
 - Waterborne shipments

Quality Control Procedures

- Sophisticated econometric models ensure reliable forecasts of shipment flows across major trade routes.

Costs Incurred in Database Development

- Not available

Geographical Coverage

- Worldwide sea-trade statistics across major international trade routes

Limitations of Data Source

- The foreign countries of origin and destination reported in the database are based on the ports of lading and discharge of shipments. Accordingly, intransit shipments are not identified in the database. For these shipments, the country of origin (*or destination*) reported in the database are not the actual countries of origin (*or destination*).
- The database lacks trade flow statistics between developing countries and also between Eastern Europe and developing countries. For many of these trade flows, the flows in the Origin/Destination matrices are reported as *not available*.

Contact Address

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