

1SUPPORTING STATEMENT  
U.S. Department of Commerce  
U.S. Census Bureau  
Commodity Flow Survey Component of the 2022 Economic Census  
OMB Control Number 0607-0932

B. Collections of Information Employing Statistical Methods

1. Universe and Sample Selection

The sample for the 2022 Commodity Flow Survey will be selected using a stratified three-stage design in which the first-stage sampling units are establishments, the second-stage sampling units are groups of four 1-week periods (reporting weeks) within the survey year, and the third-stage sampling units are shipments.

a. First Stage - Establishment Selection

The first stage sample of approximately 160,000 employer establishments will be selected from a sampling frame extracted from the U.S. Census Bureau's Business Register. The Business Register is a comprehensive centralized database of business establishments throughout the United States. It is based upon information from the Economic Census and is updated using the Company Organization Survey results and administrative data from other government agencies, such as the Internal Revenue Service. The universe of employer establishments in-scope to the CFS consists of approximately 700,000 establishments.

For sampling purposes, the universe will be stratified by geography and by industry. Geographic stratification will primarily be state and major metropolitan areas. Industry stratification will be at the three or four digit NAICS level. Some special strata will be created to produce better estimates of shipments of hazardous materials and certain rare modes. Establishments whose estimated annual value of shipments exceed designated shipment value thresholds will be selected with certainty. The remaining establishments will be selected using simple random sampling within substrata based on estimated value of shipments. Studies were conducted to determine the optimal substrata boundaries for desired levels of reliability.

b. Second Stage - Reporting Week Assignment

The frame for the second stage of sampling consists of the 52 one-week periods from January 2022 to December 2022. Each establishment selected into the 2022 CFS sample will be systematically assigned to report for four reporting weeks--one in each quarter of 2022. Each of the four weeks will be in the same relative position of the quarter. For example, an establishment might be requested to report data for the 5th, 18th, 31st, and 44th weeks of 2022. In this instance, each reporting week corresponds to the 5th week of each quarter.

c. Third Stage - Shipment Selection

For each of the four reporting weeks in which an establishment is asked to report, the respondent will be requested to construct a sampling frame consisting of all shipments made by the establishment in the reporting week. Each respondent will be asked to count or estimate the total number of shipments comprising the sampling frame and to record this number on the questionnaire.

Each respondent will be given the option of either reporting data about all of the shipments they made in the week, or reporting data about a sample of the shipments they made in the week.

If they choose to select a sample, then the respondent will be asked to do the following:

For each assigned reporting week, if an establishment makes more than 40 shipments during that week, the respondent will be asked to select a systematic sample of the establishment's shipments and to provide information only about the selected shipments. Sampling rates are designed to produce a shipment sample size between 20 and 100 shipments.

If an establishment makes 40 or fewer shipments during that week, the respondent will be asked to provide information about all of these shipments (i.e., no sampling will be required).

d. Estimation

Estimates of totals (e.g., total value of shipments, total tons of shipments, and total ton-miles of shipments) will be produced as the sum of weighted shipment data. Estimates of percent change and percent-of-total will be

computed using the appropriate estimates of totals. Estimates of average miles per shipment will be computed by dividing the estimate of the total miles traveled by the estimate of the total number of shipments.

Each shipment will have associated with it a single tabulation weight, which will be used to compute all of the estimates to which the shipment contributes. The tabulation weight is the product of seven different component weights. A description of each component weight follows.

The shipment weight and shipment non-response weight ensures that the sample of reported shipments represents all of the establishment's shipments in the reporting week. The quarter weight and quarter non-response weight inflate an establishment's estimate for the weeks reported to reflect an entire year's worth of shipments. The establishment-level adjustment weight will use 2022 Economic Census data to correct for individual establishment sampling and non-sampling error. The establishment or first stage sample weight is the reciprocal of the probability of being selected into the first stage sample. Finally, the industry by state adjustment weight will use 2022 Economic Census summary tabulations at the NAICS by state level to account for establishment non-response and changes to the universe of establishments between the time of first stage sample selection and the data collection year.

The hazardous materials supplement will produce separate estimates of the number and proportions of establishments that ship hazardous materials in 2021 or 2022 along with the number of unique types of materials shipped. Estimated counts will be further subdivided by types of materials shipped and packaging used, along with industry and geography. Since these estimates are at the establishment level and not the shipment level, only the establishment weight and a weight to account for non-response applies.

## 2. Procedures for Collecting Data

In March 2022, all establishments selected for the CFS will be sent a notification letter. This letter will identify the shipping address for which data should be reported, as well as indicate the specific reporting periods for each quarter in 2022. All selected establishments will be asked to report on either all of their shipments, or a sample of their shipments, for a specific one-week reporting period. If a sample of shipments is selected, the sample will be based on the total number of shipments made by the establishment during that period. Mail out will occur once a quarter.

During the first and fourth quarters of the CFS interview, respondents will be asked a screener question to identify whether they shipped hazardous materials in 2021 or 2022. Respondents that shipped hazardous materials will be asked a supplemental set of questions about the packaging, quantity and transport of their most frequently shipped hazardous materials. These questions will be asked about a maximum of three hazardous materials identified by the respondent.

Responses are completed using an on-line reporting instrument.

We expect a response from 80% of the establishments.

### 3. Methods for Maximizing Response Rates

It is well known that increased burden leads to decreased response rates in business data collections. With that in mind, between 2019 and 2021, the Census Bureau interviewed 65 respondents to the 2017 CFS to identify and test ways to reduce burden. This included a pilot test, in winter 2020/2021, of a new method of data collection designed to accommodate modern business electronic data storage practices and thereby reduce burden. This research was conducted under a generic clearance for questionnaire collection instrument pretesting research (OMB number 0607-0725).

Based on findings from this research and the Bureau's considerable experience with business data collection, this information collection will maximize response through the following actions:

- Survey materials that emphasize the mandatory and confidential nature of U.S. Census reports, as provided by Title 13, U.S.C.
- Improved questionnaire and instructions that incorporate clear reporting directions. The improvements were field tested August 2021-September 2021.
- Electronic reporting instrument available for all four quarters. The electronic instrument will also compute the shipment sampling interval for respondents choosing to sample their shipments.
- Toll-free telephone assistance for any business that has questions about

completing its CFS questionnaires.

- Information on the CFS website will provide respondents with additional information about the survey, including answers to frequently asked questions and additional assistance with survey reporting.
- Systematic due date reminder and follow-up letters or emails for non-response, supplemented by telephone follow-up for selected companies.
- Working with respondents to establish special reporting arrangements, including a consolidated reporting option, and time extensions when necessary. This will include communication with a limited number of respondents before initial mail-out to establish special and consolidated reporting arrangements. Flexibility in reporting options, combined with early communication, will help reduce burden for these companies.

#### 4. Tests of Procedures

The U.S. Census Bureau will use procedures based on results of cognitive testing, experience gained from the 2017 CFS, as well as the considerable body of experience with related economic censuses and surveys.

5. Contacts for Planning, Implementation and Statistical Aspects

The 2022 planning and implementation is conducted under the direction of:

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## Attachments

### A. Proposed Survey Materials

- (1) Screenshots for On-Line Questionnaire CFS-1000 (22)
- (2) 2022 CFS Help Screens Content – Instructions
- (3) 2022 CFS Hazmat Supplemental Help Screens Content
- (4) 2022 CFS Shipments upload spreadsheet columns document
- (5) 2022 CFS-L1 Initial Letter
- (6) Upload Spreadsheet - CFS 2022\_verify\_locations\_template\_Q1
- (7) Upload Spreadsheet - CFS 2022\_shipments\_template
- (8) Upload Spreadsheet - CFS 2022\_shipments\_template\_cr
- (9) Upload Spreadsheet - CFS 2022\_hazmat\_contact\_info
- (10) 2022 CFS-L1R Due Date Reminder
- (11) 2022 CFS-L2 Follow-up Letter

### B. Summary of Changes to the 2022 Commodity Flow Survey Questionnaire

### C. U.S.C. Excerpts

### D. Letters of Support from Federal Register Presubmission

- (1) BEA
- (2) MARAD
- (3) EIA
- (4) EPA
- (5) USACE