

Department of Commerce
U.S. Census Bureau
OMB Information Collection Request
Quarterly Survey of Plant Capacity Utilization
(OMB Control No. 0607-0175)

A. Collection of Information Employing Statistical Methods

1. Universe and Respondent Selection

The current sample for the Quarterly Survey of Plant Capacity Utilization was implemented starting with the first quarter of survey year 2020. The sample frame for the new sample was based on the Census Bureau's 2018 Business Register with updated information from the 2017 Economic Census on a 2017 North American Industry Classification System (NAICS) basis. This sample frame contained records for approximately 189,000 manufacturing establishments and 8,200 publishing establishments.

Sampling probabilities for the quarterly survey are assigned proportionate to total annual value of shipments (measure of size), except for self-representing establishments that are determined based on relative contributions to their respective industries. Sample allocation is determined by the priority industry requirements specified by the FRB, which includes 93 industry groups that are used as publication levels and are comprised predominantly of 4-digit NAICS industries or combinations of NAICS industries. Each of these 93 industry groups is sampled independently to satisfy the total sample size constraint of approximately 7,500 establishments. The sampling procedure ensures that the allocated sample size for each industry group is exactly realized.

A new sample is selected every five years, so until the next new sample is implemented, the current sample is supplemented each year with a sample of newly identified establishments from the Business Register in order to accurately reflect the universe for a given survey year and to maintain the initial sample size by offsetting the effects of sample attrition in each intervening survey year. The next new sample will be selected when the results of the 2022 Economic Census are available. Before publishing estimates from the new sample, we process both the new sample and the old sample concurrently for two quarters and compare the estimates. This allows us to identify data errors for the new sample and explain differences due to sample composition and response.

2. Procedures for Collecting Information

Both full production utilization rates and national emergency

production utilization rates are published from the quarterly survey. The full production utilization rate for each industry group is estimated based upon those plants reporting both actual value of production and full value of production. Simple weighted estimates of these two variables are computed by applying each plant's sampling weight to its respective data values and summing these weighted values across all reporting plants in the given industry group. The full production utilization rate for each given industry group is then calculated as the ratio of total weighted actual production to total weighted full production. A similar procedure is used to estimate the national emergency production utilization rates, using weighted values that are reported for the actual value of production and the national emergency production estimate.

The average plant hours per week in operation for each industry group are estimated based on those plants in the industry reporting plant hours. Simple weighted estimates of the plant hours are formed by applying the plant's sample weight to its respective values and adding these weighted values across the reporting plants. The average is formed as the ratio of the plant hours weighted sum to the sum of the weights for the reporting plants.

Comparisons between actual and full production by industry are made using various checkbox information that is collected in the survey. This information is collected to determine the primary reasons for changes in full production capability between current quarter and previous quarter, as well as the primary reasons for actual production being less than full production capability for the current quarter. Beginning with 1st-quarter 2013, these data are summarized in the form of weighted proportions for each of the checkbox data items at the 3-digit NAICS level, and historical estimates as far back as 1st-quarter 2008 are available upon request. Each proportion is formed from the QPC sample as the ratio of the weighted number of plants checking the particular checkbox data item to the weighted number of plants checking at least one of the checkbox data items for that particular question.

The unweighted unit response rate is approximately 45% at the overall survey level. A non-response bias study was performed based on the request by OMB and results from this study were included in the clearance package during the last OMB approval process.

3. Methods to Maximize Response

a. Follow-up Procedures

Since the last OMB clearance, we have added a few new processes to help improve our response rates. Respondents are requested to submit their data within 20 days. We added an email reminder that is sent 15 days after

mail-out to notify them of the surveys upcoming due date. Around 20 days after mailout we mail a follow-up letter to all delinquent establishments. We added robocalls to our follow-up procedures to call delinquent plants that have a phone number in our system. This occurs approximately 35 days after mailout. Previously, two analysts made calls during a short timeframe which limited the number of calls to respondents. The limited number of calls made was due to budget constraints and the limited amount of resources available for telephone follow-up. Robocalls reach delinquent respondents in one afternoon. Last, we added a follow-up email to continue to encourage respondents to submit their data. This last effort occurs around 50 days after the initial mail-out. Please see Supporting Statement Part A, Section 16 for a more detailed outline of the follow-up procedures.

In addition to the Robocalls, analysts continue to contact delinquent respondents in industries with very low response rates beginning with respondents that have reported prior data. They are asked to provide data via the internet or over the telephone.

OMB has requested that we include a detailed description of our continued efforts to increase response rates. As noted above, Robocalls allow us to reach more delinquent respondents for a small cost to our budget, about 10 cents a call. Respondents receive an email reminder, a mailed follow-up letter, a Robocall to let them know we have not received their submission, an email follow-up, and finally, analysts call plants in industries with very low response. Response rates have declined due to COVID-19 and to the introduction of our new sample. COVID-19 has greatly impacted response due to the lack of employees at physical locations that receive the paper letter. For QTR1 2020, a cover letter was mailed initially and then followed by emails. The National Processing Center (NPC) was not operational at the beginning of the pandemic. Since this was the start of the new sample, we did not have email addresses for most new cases, therefore, they did not receive the email reminders. This, coupled with additional paper follow-ups not being mailed, resulted in a lower response. Analysts heavily researched contact information for new sample plants during QTR1 into QTR2 2020. The overall response rates are down compared to the last OMB clearance, but the follow-up efforts have kept the response rates consistent during this difficult time with the pandemic. On average, after implementing the email and robocall strategies, response rates increased about 2%, whereas the letter follow-up boosted the rate by about 6%.

b. Estimating for Missing Data

Given that we produce rates, we do not estimate data for plants not responding in time to meet publication deadlines because the imputation would merely involve ratios of weighted sums from respondents at the industry group level. In our conclusions section of the non-response bias study that we conducted for the previous OMB clearance, we discussed the idea of investigating the use of other possible imputation methods to account for low response, but we still have not conducted this research due to limited resources.

c. Reliability

For each industry group level, standard errors are published for the full production utilization rates, the national emergency production utilization rates, the average plant hours per week, and the checkbox proportions.

4. Tests of Procedures or Methods

Periodically, Census Bureau staff interview survey respondents to assess our data requests and to keep abreast of the current record keeping practices. For the quarterly survey, this includes inquiring about the frequency of the quarterly collection, response time, electronic reporting, and policy pertaining to voluntary surveys.

5. Contacts for Statistical Aspects and Data Collection

Person responsible for statistical methodology:

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Person responsible for data collection:

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List of Appendices

- Appendix A. QPC worksheet, instructions, respondent portal flyer, and screenshots from the online application.
- Appendix B. Copy of cover letter, follow-up letter, reminder email, follow-up email, and robocall script