

Supporting Statement - Part B
Survey of Plant Capacity Utilization
(Form MQ-C1 & MQ-C2)

B. Collection of Information Employing Statistical Methods

1. Description of Universe and Respondent Selection

Annual survey:

The sample that was selected for the 2004 annual survey will be used through survey year 2008. The sample panel will be augmented each year by a sample of plants that came into existence each year following the initial sample. The sample was selected from the 2002 Economic Census. The Economic Census universe contained approximately 400,000 manufacturing plants and 46,000 publishing plants. Administrative records were given no chance of selection for the Survey of Plant Capacity Utilization. As a result, the final sampling frame was approximately 232,000 manufacturing plants and 12,000 publishing plants.

Sampling probabilities were assigned proportionate to total value of shipments. Actual probabilities were based upon sample allocations determined for each NAICS industry. These allocations in turn were determined by industry priorities that were provided by the Defense Logistic Agency (DLA), the Institute for Defense Analysis (IDA) and the Federal Reserve Board (FRB). These allocations received a final adjustment so that the total sample size constraint of 17,000 establishments was satisfied. Each NAICS-6 industry was sampled independently. The sampling procedure ensured that the allocated sample size for a given industry would be realized exactly.

Quarterly survey:

The sample for the quarterly Survey of Plant Capacity Utilization will be used starting with the first quarter of survey year 2007. The sample will be an establishment-based sample selected from the 2005 Business Register. The sampling frame for the quarterly survey will exclude administrative records, just as the annual survey does, so the resulting final sampling frame for the quarterly survey will be similar in size to that constructed for the annual survey. Therefore, the sampling frame for the quarterly survey will contain roughly 240,000 manufacturing plants and 12,000 publishing plants.

Sampling probabilities for the quarterly survey will be assigned proportionate to total value of shipments. Actual probabilities of selection will be based upon sample allocations determined for each specified industry group. These sample allocations will be determined by the priority industry requirements specified by the FRB. The sample industry requirements proposed by the FRB included 49

industry groups (48 encompassing the manufacturing sector and 1 from the publishing sector). These industry groups correspond predominantly to 4-digit NAICS industries or combinations of 4-digit NAICS industries, with a few exceptions. Each of these 49 industry groups will be sampled independently to satisfy the total sample size constraint of approximately 6,000 establishments. The sampling procedure being used for the quarterly survey ensures that the allocated sample size for each sample industry group is exactly realized.

2. Sampling Methodology and Estimating Procedures

The full production utilization rate for a 6-digit NAICS manufacturing industry is estimated based on those plants in the industry reporting both the actual value of production and the full production estimate. Simple weighted estimates of the two variables are formed by applying the plant's sampling weight to its respective values and summing these weighted values across the reporting plants. The utilization rate is formed as the ratio of the actual production weighted sum to the full production weighted sum. The national emergency production utilization rate for a 6-digit NAICS industry is formed in the same manner with national emergency production replacing full production.

Higher level utilization rates (5-digit, 4-digit and 3-digit NAICS, durable, nondurable, advanced, primary, and total U.S.) for the manufacturing sector are computed based on value added measures. Value added is defined as the difference between the value of shipments and the value of all inputs to production (including the cost of materials, supplies, containers, fuel, purchased electricity, and contract work.) Value added is considered the best value measure available for comparing the relative economic importance among manufacturing industries and in aggregating to higher industry measures. Value added avoids the duplication in figures of production that result when products of some establishments are also input materials for other plants. Value added measures by 6-digit NAICS are obtained each year from the most recent Annual Survey of Manufactures (ASM) or Economic Census, Manufacturing Sector.

The sum of the value added totals across the 6-digit industries forms the numerator of the utilization rate. Next, each industry value added total is divided by its 6-digit full production utilization rate. This provides an estimate of full production in terms of value added for the industry. The sum of these values across the 6-digit industries is the total value of full production in terms of value added for the higher level, and this sum is the denominator of the full production utilization rate. The higher level national emergency utilization rate is formed in the same manner.

For the publishing industry, there is no value added data used for higher level utilization rates. These rates are calculated in the same manner as the 6-digit NAICS manufacturing industries.

While the annual survey produces estimates for both full production utilization rates and emergency production utilization rates, the quarterly survey will only collect actual and full production data. Therefore, the quarterly survey will only present full production utilization rates. 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. As with the annual survey, simple weighted estimates of these two variables are computed by applying each establishment'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.

Annual estimates are based on approximately 82% response. It is difficult to estimate the response for the quarterly survey, being new and voluntary. The Quarterly Services Survey, a quarterly survey with a similar sample, is 80%. We plan to evaluate response as we progress but hope that the rate is near 65 - 80%.

3. Methods to Maximize Response and Accounting for Nonresponse

a. Follow-up Procedures

Respondents will be asked to return the initial form within 30 days and 20 days for the annual and quarterly respectively. Those who do not respond to the survey will receive follow-up letters. A duplicate form and instructions will be sent with each follow-up attempt.

We will telephone companies with large plants that still have not responded after the mail follow-ups and ask them to provide data over the telephone or to return the form by mail.

b. Estimating for Missing Data

Estimates for plants not responding in time to meet publication deadlines are imputed based on industry averages.

c. Reliability

For each industry level for the annual survey, we will calculate and publish an estimated relative standard error for "full" and "emergency" utilization rates and the change in these rates from the previous period. Relative standard errors will be published for full rates for each industry group for the quarterly survey.

4. Tests of Procedures or Methods

Periodically, Census Bureau staff interviews survey respondents to assess our data

requests and to keep abreast of the current record keeping practices. For the quarterly survey, we contacted potential respondents and inquired 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

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List Of Appendices

Appendix A. Form MQ-C1 and instructions

Appendix B. Proposed form MQ-C2

Appendix C Form and results from consultation outside the agency

Appendix D Copy of 2005 cover letter