

## Harmonizing Economic Surveys

Name (s) of author(s):

Jessica Wellwood<sup>1</sup>, Erica Marquette<sup>2</sup>

<sup>1</sup>Census Bureau (USA)

<sup>2</sup>Census Bureau (USA)

Organization:

### Background

The US Census Bureau Economic Directorate's (ECON) central mission is to provide statistics on the health of the United States (US) economy. Like most National Statistics Institutes worldwide, ECON is faced with many challenges as it strives to achieve (1) its mission of collecting quality economic data and providing an ongoing portrait of the economy and (2) its general vision of being the leader and trusted source of comprehensive and timely economic products. Sources of these challenges are both external and internal to the Census Bureau, and include:

- Desire from stakeholders and sponsors to produce relevant, timely data products, at differing levels of detail for geographic capturing the changing US economy
- Limited ability to share and produce aggregated data products across subject areas
- Emerging technology trend to collect and retain alternative data sources (e.g. big data) for deeper analysis, insight, and respondent burden reduction
- Increased competition from emerging external economic statistics services and firms
- Increased budget scrutiny, fewer resources, and declining response rates

It is challenging to address these issues, while maintaining the methodological rigor required to produce statistically sound data products for ECON's major stakeholders.

To proactively address the challenges, ECON began building a business architecture that integrates programs, shares services, and reimagines the operational, information, and technical environment for producing official statistics, while taking a respondent-centric approach to data collection. It is intended to provide a framework that describes a desired target state for ECON. The primary goals are:

- produce timely, relevant products/services
- reduce respondent burden
- improve quality of products/services
- increase ability to share data and resources across surveys
- increase the agility and efficiency of economic programs
- maintain a high level of trust with data users and respondents

To determine what the reimagined state would look like, the business architecture team followed a six-step process:

1. Develop a high-level vision.
2. Document current state and related activities.
3. Describe target state.
4. Conduct gap analysis.
5. Define transition activities.
6. Sequence transition activities and identify dependencies

This analysis revealed that core collection components differed across programs. Programs have different collection units, inconsistent content, varying methodologies, and differing item naming conventions. To fully realize operational efficiencies and reduce respondent burden, these foundational survey components require alignment. Projects were launched to harmonize these components. Two of these projects, which are the focus of this presentation, are Business Unit Harmonization and Content Harmonization. Additionally, efforts to create single data and metadata repositories, govern the style of the instruments, and research alternative data sources (including Big Data) have begun.

ECON's various programs set up different units that represent a single company for several reasons including:

- to capture information about how companies are organized,
- to facilitate the processing and storage of administrative data,
- to maintain a dynamic business register, and
- to produce required data tabulations

Therefore, the optimal unit structure for one purpose, such as processing administrative data, may not work well for another purpose, such as collecting data for a current survey. As a result, surveys set up different units to meet their own needs. Due to incoherent units, surveys are unable to share the data with the frame or other programs. Differences in how units are set up lead to inefficiencies and barriers for sharing data, developing common approaches, and using enterprise-wide solutions.

Additionally, this causes a cumbersome process for companies in multiple programs. When one program defines the reporting entity differently from another, the companies are unable to establish a common reporting unit within their accounting records to facilitate reporting the requested data. Therefore, respondents are forced to re-calibrate their data, which is rather burdensome, or introduce reporting errors. As ECON shifts to a respondent-centric paradigm, developing a harmonized unit across all programs, aligning to company records is essential.

The Business Unit Harmonization team was tasked with researching business units to recommend options for a set of harmonized units that best align with the operating structure/accounting records for the majority of businesses.

During the pilot phase of Business Unit Harmonization, the team analyzed 52 of the most complex companies in the U.S., and concluded that a singularly defined reporting unit structure will not meet the needs of all companies researched. As a result, the team recommended that these companies receive a full service account manager. These will be discussed in the presentation.

In the second phase of Business Unit Harmonization, the team was tasked with extending the research to focus on the "typical" multi-unit company in order to determine if a harmonized

business unit for a majority of companies existed. The team created a “complexity indicator” based on the number of establishments, industries, states, and tax reporting entities the company has. This helped narrow the focus of the research. After reviewing the surveys that would be using this unit, the research concluded that a Kind of Activity Unit (KAU) should be implemented as the harmonized unit. The KAU is based on the industries in which the company conducts business. This will also be discussed further in the presentation.

Currently many programs collect the same or similar data items for different reference periods (e.g., monthly or annual retail sales) or different types of populations (e.g., wholesale trade, retail trade, establishment or company, etc.). However the question wording and instructions used to collect the data varies across the programs, resulting in incoherent data for data users and additional reporting burden for business respondents.

This variation across survey programs causes confusion for the respondents and data users, as well as inefficiencies for ECON processes. The goals of harmonized content are:

- Increase the use of data from alternative sources
- Utilize a respondent-centric approach to conducting surveys
- Decrease response burden
- Maintain and/or improve quality of reported data
- Ensure published statistics meets data user needs
- Reduce cost and eliminate redundancy

Efficiencies are gained when content is harmonized across programs. This includes applying cognitive testing to multiple programs, increasing data coherence across programs, which in turns improves data quality and streamlines benchmarking processes. Analyst and programmer time is reduced during instrument creation as content is re-used rather newly developed. Most importantly, content is collected from the respondent’s perspective. Questions align to accounting records, and are consistent across survey programs.

The Content Harmonization team was launched to develop an agreed upon set of content for collection and publication. The team used a sequential approach for evaluating and harmonizing key concepts across programs. They began with concepts that are common across surveys and most critical for economy-wide statistics, and then they plan to move to less-central concepts. The common concepts are:

- Inventory
- Payroll
- Sales
- Certification by respondents of the correctness of the reported information, and the authority to release the response to the Census Bureau

For example, the table below illustrates the different ways programs currently ask for ‘total inventory’, along with the proposed wording for the harmonized question.

Program	Question Wording	Proposed Harmonized Wording
Monthly- Advanced Retail	What was the value of merchandise inventories, regardless of where held, owned as of the end of the month?	What was the value of inventories (if applicable, before Last-in, First-out (LIFO) adjustment) owned by this (establishment/firm) as of XX/XX/XXXX.
Monthly- Retail	What was the value of inventories (before Last-in, First-out (LIFO) adjustment) as of the end of the month?	
Monthly- Wholesale Trade	What was the value of inventories (before Last-in, First-out (LIFO) adjustment)?	
Annual- Retail, Wholesale, Services	What was the value of merchandise inventories as of December 31 in 20XX?	

Annual Manufacturing	What was the value of inventories owned by this establishment as of December 31 before Last-in, First-out (LIFO) adjustment (if any) for:	
Economic Census-Mining	What were the value of mined products and supplies owned by this domestic reporting unit as of December 31 before Last-In, First- Out (LIFO) adjustment (if any) for:	
Economic Census- Island Area's	What was the total value of merchandise inventories owned by this establishment?	
Economic Census- Manufacturing	What were the value of inventories owned by this establishment as of December 31 before Last-in, First-out (LIFO) adjustment (if any) for	
Economic Census- Information	Report inventories owned by this establishment as of December 31 before Last-in, First-out (LIFO) adjustment (if any).	
Economic Census- Construction	Using current cost, what was the value of inventories owned by this establishment as of December 31? (If using Last-In, First-Out (LIFO) method of evaluation, adjust to obtain First-In, First-Out (FIFO) or current cost.)	
Economic Census- Wholesale, Transportation	What were the inventories and Last-in, First-out (LIFO) adjustment, if any, for products owned by this establishment as of December 31?	
Economic Census-Mining Sector	Report inventories and Last-in, First-out (LIFO) adjustment, if any, for products owned by this establishment as of December 31.	
Economic Census- Information	Report inventories owned by this consolidated reporting unit as of December 31 before Last-in, First-out (LIFO) adjustment (if any).	

The team will continue to work, topic by topic, ending when the following criteria are met:

- Programs are harmonized to use the same definition and instructions at a conceptual level; however, the language used in questions will be customized by industry using terms respondents understand.
- General content is harmonized across businesses, governments, and international trade, where applicable
- Industry specific wording is based on data driven decisions
- Program specific content is harmonized within programs (businesses, governments, etc.); industry specific content is harmonized within industries
- Evidence from record keeping studies illustrate common terminology and industry specific language
- Harmonized content is determined by looking at the measurement objectives and uses of the data (publication requirements)
- Governance is established to maintain the harmonization and ensure that the amount of non-harmonized content does not grow
- Managers think across survey programs when considering content
- Subject matter expertise and decision driving evidence is gained

Questions we would like to discuss include:

- What are challenges, successes and opportunities that others have experienced during harmonization efforts?
- How are business units defined for data collection purposes in your organizations? What is their relationship with statistical units?
- Are they consistently defined across survey programs? Why or why not?
- What benefits do you see in harmonizing survey content and collection units? What are some (potential or realized) obstacles to harmonization?