Census Re-Engineering and the Implementation of the North American Product Classification System (NAPCS)

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As part of a larger re-engineering of the Economic Census, the North American Product Classification System will be implemented in the Economic Census. Currently, different methods and practices across areas of the employer universe complicate comparison and analysis of product data. The implementation of NAPCS will standardize methods and result in a comparable dataset across the entire Economic Census. NAPCS was chosen as part of the larger re-engineering process because it provides a focal point for standardization and comparability that will affect all aspects of the Economic Census process. Along with the NAPCS implementation, the Census Bureau is moving forward to reduce redundancy, simplify processes and systems, reduce or eliminate paper by aggressively pursuing electronic instruments and open data dissemination capabilities. The move toward a more consistent presentation of industry and product data should reduce complexity in processing with an overall goal of significantly reducing the cost to produce the Economic Census.

Many of these changes will be relatively transparent to users. Others will represent a challenge to the Census Bureau and to data users and especially to its statistical partners at BEA and BLS. In simple terms, the Economic Census will collect standard products based on NAPCS across all covered sectors of the economy. Product definitions will be independent of producing industries. Implementation of a demand-based NAPCS will challenge data users by eliminating some aggregate statistics below the industry level and replacing them with consistent detail on the products produced by industries. The re-engineered Economic Census will provide product data totals with breakdowns by the contributing NAICS industry as well to the extent allowed given disclosure rules. While information of the same type will be available in many cases, the format will be different. The implementation of NAPCS will not change industry definitions in NAICS but will change some of the business rules and practices used to assign NAICS codes in the Economic Census. Instead of code assignment based on products only in manufacturing, for example, a variety of process questions in addition to or in place of products (e.g., self identified kind of business questions, input questions or other special inquiries) may be used as appropriate. The adoption of NAPCS will challenge users who have relied on classification of specific products to specific industries and assignment of industry codes based on the products produced. While new business rules for industry code assignment should result in more robust industry coding, existing aggregates for primary products and secondary products for manufacturing will be eliminated. The currently defined specialization and coverage ratios produced for mining and manufacturing industries, also based on assigning industry codes based on products, will be eliminated as well. The Producer Price Index program at BLS is particularly concerned that its current aggregate primary and secondary product industry-based price indices will be difficult to construct and are some of the more widely used indices.

A re-engineered economic census using demand-based NAPCS products changes the input data used for a variety of other estimates. In particular, the coordinated use of nominal output data and associated price deflators is crucial for key indicators of the health of the U.S economy including the national accounts and productivity series. The goal of maintaining and improving the relationships between output data and the price indices used as deflators must be achieved as changes are implemented.

The implementation of NAPCS as part of a re-engineered Economic Census will include a number of mitigation strategies for data aggregations below the industry level eliminated during implementation of NAPCS. Product data will be collected using two levels of detail that are roughly comparable to the broad line/detail line practices used in services industries or the 7-digit/10-digit detail levels used for manufacturing and mining. The content of some categories will change but the level of detail should remain similar. In other words, data will be presented for industries detailing the products that are outputs. This will allow the identification of all significant products produced by an industry that could be grouped as a replacement for a primary products aggregate in concept and use. Census will develop mappings or concordances of current products to new NAPCS based products to mitigate disruptions. Census, BEA, and BLS have worked together to define the NAPCS and will continue to work together to define and apply the business rules used for industry coding and common definitions of what constitutes significant products as well. The agencies will also continue to work together during collection instrument development phases to account for the needs of the various programs. Greater sharing of data and an expansion of data sharing legislation would also provide strong mitigation.

This presentation will provide an overview of the changes in the Economic Census and an overview of the program impacts of these changes at BEA and BLS. Census, BEA, and BLS have agreed to work together to develop and share business rules for industry classification and work to plan an orderly transition to a new basis for data on output products.

1.   Will the benefits of using a NAPCS coding structure for all product detail outweigh the costs of implementation for the three agencies?

2.   Do the members recommend any additional coordination efforts to help maintain the critical relationships between output and price deflator data during the transition?

NAPCS Implementation in the Economic Census

Statement of Issue

The Census Bureau is re-engineering the Economic Census due to shrinking budgets and an evaluation of its 2012 Economic Census processes. The Economic Census currently uses a variety of practices to present output products from producers in NAICS industries. These different practices result in complex processing requirements and data that are not comparable across the entire Economic Census. Data users must use different tools or methods to use detailed product data from the Economic Census based on the sector producing the data. To reduce the complexity, increase the comparability, and operate more efficiently overall, the Census Bureau is proposing to standardize the industry classification methods, align estimation methods across sectors to the extent practicable, and present economy-wide comparable data for output products of industries in the Economic Census. NAPCS is one of the consistency improvements. In addition, the Census Bureau is moving forward to reduce redundancy, simplify processes and systems, reduce or eliminate paper by aggressively pursuing electronic instruments and open data dissemination capabilities. The move toward a more consistent presentation of product data is expected to reduce complexity in processing with an overall goal to significantly reduce the cost to produce the Economic Census.

The changes required for NAPCS implementation will represent a challenge to the Bureau and to data users, particularly those who have relied on classification of specific products to specific industries resulting in aggregates for primary products and secondary products and those who rely on the current specialization and coverage ratios produced for mining and manufacturing industries. The current era of flat or declining budgets requires the Census Bureau to embrace change that will meet the goals of efficiency in the production of data and increase the efficiency of data use by the larger statistical community. Alignment of internal processes will have the benefit of less costly revisions in the future and improved ability to embrace enterprise solutions in data collection, processing, and dissemination. More discussion of why the Economic Census, why NAPCS, and why now is included in Appendix 3.

Interagency Product Team

In June 2012, the Census Bureau chartered a team to research product coding in the Economic Census in anticipation of a complete implementation of the North American Product Classification System (NAPCS). The Team included representatives from the Census Bureau, the Bureau of Labor Statistics' Producer Price Index program, and the Bureau of Economic Analysis. The charge to the NAPCS Product Team was to develop recommendations or present options to more consistently collect, tabulate, and present product data across the Economic Census. The Team discussed the current data collection requirements and resulting uses of detailed product data in the Census Bureau, the Bureau of Labor Statistics Producer Price Index

Program, and the various programs at the Bureau of Economic Analysis. The Team recommended:

1) Apply consistent product coding and presentations across the entire Economic Census to facilitate economy wide analysis;

2) Tabulate industry and product data in a matrix format that will allow presentation of:

   a) industries and the products they produce; and
   b) products and the industries that produce them (i.e., "wherever made"); and

3) Use consistent, systematic distribution of non-sample and nonresponse product data using the inflation and allocation method rather than the presentation of separate NSK at the product class or product level.

The Census Bureau reviewed the current practices used in the Economic Census and has decided to standardize on product and industry coding practices that align with the underlying concepts of the standard classifications recommended by the Office of Management and Budget. A conceptual presentation of possible data products is included in Appendix 2.

Underlying Concepts of NAICS and NAPCS

A presentation of the underlying concepts of the North American Industry Classification System (NAICS) and the North American Product Classification System (NAPCS) sets the foundation for additional discussion. NAICS is an establishment classification used to categorize businesses based on the production function used – similar establishments doing similar things in similar ways are classified together by industry. NAPCS on the other hand is an output product classification based on a demand concept – how things are used and how they are used in relationship to each other. These two complementary classification systems are designed to meet the needs of those studying homogeneous establishments or businesses as well as those studying the market and demand for individual and groups of products. Someone studying the input structure or processes of a knitting mill might need to know the outputs from a stage of processing view (for example, broadwoven fabric that will be an input to other producers verses completed garments that will require no further processing). Someone studying the market for shirts or the demand for shirts needs to know the total supply of shirts but the specific origin might be less important.

The Manufacturing and Mining sectors currently assign NAICS industry codes based on the products produced in the Census Bureau's Economic Census. This results in similar demand-based products differentiated by the producing industry. For example, there are separate products for shirts made in knitting mills (3151917) and knit shirts made from purchased fabric (3152231). These individual products are not combined in a commodity presentation because they are identified by different product codes from the numerical list.

For these sectors, the mined or manufactured products determine the industry classification of an establishment. An establishment's industry shipments include primary products (used to assign an industry classification), secondary products (considered primary to other industries), and receipts for miscellaneous activities (contract work, resales, sales of scrap, etc. which in an economy wide product classification would also be primary to other industries). The primary product(s) shipments determine the industry of the establishment, regardless of the number of products made by the establishment. The first six digits of a product code contain the NAICS industry code. The seventh digit identifies the product class. The eighth digit represents the level of agreement, generally, between Census and sub-industry price indices in BLS's Producer Price Index (PPI), and 9th and 10th digits identify specific groups of products or individual products in detail.

Assignment of industry codes based on products works well for output defined industries. In practice, many NAICS industries in manufacturing can still use output products to proxy the production process for classification. However, there are numerous cases where the same or similar products can be produced using different processes. Current practices in mining and manufacturing identify separate products for each industry that produces the same product.

Service and distributive trade industries in the Economic Census use a different set of processes and methods. While products are used to classify establishments in some cases, other tools including self-designated kind-of-business (SDKB) coding and special inquiries are also used as appropriate. There is no single method for coding industries as is done for mining and manufacturing. In non-manufacturing/non-mining industries, products alone are not sufficient for industry classification. Product and services codes are five digit codes and the same code within sectors is used regardless of the producing industry. This allows aggregation of demand-based products into commodity presentations across industries within sectors. Currently, each subject matter area in services and distributive trades uses a unique set of codes to identify products.

Selected NAICS industries specify the sale of a range of products with no one product predominating and/or include 'known as' criteria within the definition. There are also NAICS industries that are defined as selling specialized products in combination with related services (repair, rental), with no definitional requirement that the sale of goods predominate over related services provided. Therefore, products outside of manufacturing/mining are not currently defined based on industry-of-origin. In many cases, the same argument can (and should) be made for manufacturing and mining industries.

In general, there are three main data estimates available for manufacturing and mining industries that will become less meaningful based on a consistent product classification that is the same for all industries: 1) aggregated product data identified as primary or secondary, 2) specialization ratios, and 3) coverage ratios. Each of these three estimates rely on industry coding based on the output products. Service and distributive trade industries did not develop these estimates because

the industry and product coding practices follow more closely the concepts of the classifications.

Currently for mining and manufacturing, primary products are defined as those products that are produced by a given industry and are sufficient to determine the industry code. Secondary products are those products sufficient to be primary to another industry. These relationships are static and have been in place for decades. The conversion from the SIC to NAICS did result in some products moving from one industry to another in implementation. These changes were identified as split SIC codes and products were used to identify the most appropriate NAICS industry code in 1997. There was no substantive change to industry assignment methods with NAICS implementation for mining and manufacturing industries.

The use of a consistent product classification based on demand will have impacts on the data available and change some of the standard estimates that are currently used. The elimination of separate versions of the same product regardless of the industry code assigned to the producer will, by definition, remove the ability to develop aggregates for primary and secondary products to the extent that they result from assigning industry codes by output product rather than by process. If more than one industry can produce the product, it will be shown as the same product in more than one industry. The designation of one of the contributing industries as the "primary" producer would be relegated to a quantitative analysis of the largest contributing industry.

Specialization ratios measure the relationship of primary product shipments to total primary and secondary product shipments for establishments classified in the industry. Coverage ratios represent the ratio of primary products shipped by establishments in an industry to the total shipments of such products shipped by all manufacturing or mining establishments wherever classified. These two descriptive statistics are dependent on the assignment of products to industries and subject to substantial definitional variation. There was an extensive discussion of the implications for specialization ratios and coverage ratios related to the specification of primary products and secondary products in ECPC Issues Paper 4. A relevant portion is included in Appendix 1.

Impact on Programs

The implementation of NAPCS will have varying effects on three levels of programs in the Federal Statistical System. These are identified here as primary, secondary, and tertiary programs. Primary programs are not dependent on estimates from other statistical programs. Secondary programs collect some primary data but also rely on estimates from other statistical programs. Tertiary sources collect no primary data but use estimates from a variety of sources. The Economic Census is an example of a primary source. The Producer Price Index is an example of a secondary source (direct collection of prices but weighting based on Census data and net output based on detailed estimates from BEA's input-output tables). The national

accounts at BEA or the productivity program at BLS are tertiary sources that develop their estimates with little or no direct or primary data collection (i.e., new estimates are developed largely or exclusively based on other primary or secondary sources). This initiative is focusing on the first step, improvement in the Economic Census. This initiative does not include specific changes to the periodic programs that benchmark to the Economic Census within the Census Bureau although the impacts would mirror the descriptions included below.

1. The potential impact on primary data sources includes the methodological and practice changes necessary to collect, estimate, and publish comparable data across the entire Economic Census. These impacts are largely internal to the primary sources. Changes to variables and data elements directly impact secondary and tertiary sources.

2. The potential impact on secondary sources is two fold. First, they must accommodate changes in the primary source data. Using the PPI as an example, the program must make the necessary changes to adapt to new weighting information from the Economic Census. These programs must also address the methodological and practice changes necessary to collect, estimate, and publish comparable data within the new framework.

3. The potential impact on tertiary data sources is the most complex. These programs must accommodate changes from a variety of sources that may occur on different timelines. For example, industry productivity estimates from BLS use output data from the Census, price indices from PPI, input-output data from BEA, etc. A change to eliminate primary and secondary product price indices from PPI would directly affect the productivity indexes but may not occur at the same time that output data changes occur or when input-output relationships are set.

Currently, the different methods of data presentation and estimation from the Economic Census increase the complexity and decrease the consistency of methods used by secondary and tertiary sources. PPI must massage data for products by sector in order to develop weights for the industry and commodity price indices. Output product data from the Economic Census must be massaged by the national accounts to bring it in line with a consistent framework. The variance in methods and practices within the Census Bureau (as a significant primary source) imposes additional complexity on the secondary and tertiary source programs. Anecdotally, the ability to automate data input and use in secondary and tertiary programs is severely limited because of the various data presentation formats.

Mitigation Options

There are several options available to mitigate the elimination of primary/secondary aggregates, specialization ratios, and coverage ratios. Several possible strategies include:

A comprehensive set of data that includes industries and the products they produce as well as total products by contributing industry will provide new opportunities for sampling and analysis. For example, while the PPI uses primary products as a second round sampling characteristic,

significant products of the industry with a set percentage cutoff could provide a replacement. Alternatively, if product data are provided by establishment as well as industry, significance could be determined by the percent of establishments that produce a product. Aggregations for goods, services, and distributive trade products in place of primary and secondary products would result in more homogeneous measurement groupings than the current aggregates for miscellaneous receipts that include a mixture of services (ideally measured on a gross output basis) and resales (ideally measured as margins). Additional work with data users is needed to determine if one or more of these options will be sufficient.

As noted in Appendix 1, the current specialization and coverage ratios for industries in mining and manufacturing are based the assignment of industry codes using products. These have become less useful over time because goods produced by more than one production process have been more tightly defined by the industry-of-origin (increasing specialization and coverage by changing the definition). For example, the specialization and coverage of an industry defined by shirts made from purchased fabric might be high because shirts made in knitting mills or integrated broadwoven fabric mills are excluded by definition. The coverage and specialization would be considerably different if all shirts regardless of industrial origin were included in the analysis.

A more comprehensive presentation of industry output using demand-based products would allow for new statistics and ratios with less potential bias. For example, manufacturing industries could be characterized by their specialization in goods vs. services, studied to identify shifts to or from resales, shifts from one product to another, or other comparisons that might help identify structural change within industries.

The cost to implement change of this type in the Economic Census is significant. In the absence of processing system changes due to changes in technology, the cost might exceed perceived benefits. If implementation of changes to increase comparability of data is undertaken during normal systems revision and update based on underlying technology needs, there will still be marginal cost increases but they will be folded into and somewhat mitigated by other required update costs. A complete long-term schedule will also help data users plan for the changes and accommodate them within their normal technology cycles as well.

Appendix 1: Excerpt from ECPC Paper 4 accessed at:

Specialization and coverage ratios, taken together, are the second major criterion used in past SIC revisions. Specialization and coverage ratios are descriptive statistics that have served in the past as measures of homogeneity in industrial classification.

These ratios in the United States are calculated only for manufacturing industries, because the necessary data have not been available for nonmanufacturing sectors.

The *specialization ratio* measures the degree to which the establishments in a given industry concentrate on the primary products that define that industry. The SIC Manual lists each 4-digit industry's primary products, though these are not always complete listings.   The numerator of an industry's specialization ratio states the value of shipments of the industry's primary products by establishments classified in the industry; the denominator states the value of such shipments for the industry's primary and secondary products combined.   For example, the Steel Works, Blast Furnaces (Including Coke), and Rolling Mills industry (SIC 3312) has a specialization ratio of 98 percent.   This means that for establishments classified in the steel works, blast furnaces, and rolling mills industry, 98 percent of their value of shipments derives from the primary products of this industry.   Only 2 percent of this industry's shipments consist of secondary products, that is, products that are produced by establishments in SIC 3312 but are primary products in other 4-digit SIC industries.

The *coverage ratio* measures whether the establishments classified in an industry account for a high proportion of the economy's shipments of the primary products on which the industry is defined. The numerator of an industry's coverage ratio states the value of shipments for the industry's primary products (same as the numerator for the specialization ratio); the denominator of the coverage ratio states the total value of shipments of those same primary products, wherever those products are made within the Manufacturing Division (any production of these products outside the Manufacturing Division is not used in the calculation). For example, the coverage ratio for SIC industry 2515, Mattresses, Foundations, and Convertible Beds, is 83

percent. This means that 83 percent of the Manufacturing Division 's total shipments of the mattress and bedspring products that are primary to SIC industry 2515 are actually produced in SIC 2515. The remaining 17 percent of these products are produced as secondary products in other manufacturing industries.

Specialization and coverage ratios are used as measures of the appropriateness of an industry definition. In the United States, an industry is recognized only if the specialization ratio is at least 80 percent and, in general, the coverage ratio is at least 70 percent. However, as explained in the Appendix, the threshold value for the coverage ratio differs according to whether the products are made for commercial sale, for consumption within the same establishment, or are made from purchased materials.

In the United States, only the census of manufactures collects the extensive product information needed to calculate specialization and coverage ratios. Comparable product or services data are not collected in the economic censuses for the nonmanufacturing sectors, i.e., only primary product information is collected . For this reason, specialization and coverage ratios are available only for manufacturing industries. Moreover , the ratios are calculated only for establishments that have payrolls. In some industries, though probably not many manufacturing ones, sales from sole-proprietor, nonemployer firms may be substantial. Finally, miscellaneous receipts derived from other than primary or secondary products are not used in the calculation of the specialization ratio.

Canada also calculates specialization and coverage ratios, generally using the same methods as the United States. In some instances, however, the Canadians calculate specialization and coverage on an "economy-wide" basis, in contrast to the United States, where the calculations are made only within the Manufacturing Division. Canada requires that the specialization ratio be at least 70 percent, and the coverage ratio be at least 75 percent for 4-digit industry status. In addition, the Canadians use the coverage ratio at the 3-digit, 2-digit, and divisional levels as a rationale for assigning certain activities within the classification, e.g., tire retreading is placed in the Canadian wholesale trade in tires industry because the latter in Canada is the major producer of retreads.

Specialization and coverage ratios are useful, but have limitations.

   (a)   Primary and secondary product definitions

Ambiguity arises because specialization and coverage ratios are each a function of the way the industry 's primary products are defined. This matter is somewhat complex and may be illustrated with a hypothetical example. Suppose that two new industries are being considered , for which specialization and coverage ratios are to be computed. The two industries produce six distinct goods and services, designated as A, B, C, D, E, and F. The two industries under consideration contain only establishments that produce goods A, B, C, and D, but the products E and F are primary to other 4-digit industries. Hypothetical data are presented in Table 1.

In Table 1, products A and B are defined as primary products in industry 1. Establishments in industry 1 also produce as secondary products C and E (secondary products are products that are primary to another industry). Products C and D are primary to establishments in industry 2, with products A and F being secondary to this industry.

The specialization ratio for industry l, as calculated from data in Table 1, is 73, [(A+B)/(total production in industry 1)= (48+25)/ 100]; for industry 2, the specialization ratio is 75, [(C+D)/(total production in industry 2)=(30+45)/ 100]. In this example, neither set of establishments achieves the required specialization ratio (80 or above) for designation as a 4-digit industry.

The coverage ratios for industries 1 and 2 are 94, [(25+48)/(25+48+5)], and 91, [(30+45)/(30+45+7)], respectively.   Note that the coverage ratio is high for industry l because product C does not appear in the denominator of industry 1's coverage ratio (product C is defined as a secondary product in industry 1).

One can increase an industry's specialization ratio by redefining its secondary products as primary. This is depicted in Table 2. The two sets of establishments produce exactly the same products as in Table 1. However, product C, a product that is made in both industries, is now designated as primary to both industries.

Assume that no new establishments are moved into industry l as the result of the change in industry definition, so the data in Table 1 remain unchanged. With product C now being primary to industry 1, the specialization ratio of industry 1 increases to 80, [(25 +48 + 7)/ 100], because the output of product C is added to the numerator of the ratio (the denominator remains unchanged). The specialization ratio of industry 2 is unchanged from the first example, because product C was already among this industry's primary products in Table 1.

TABLE 1	Primary products				Secondary products				Total production
	A	B	C	D	A	C	E	F	
Industry 1	25	48				7	20		100
Industry 2			30	45	5			20	100

TABLE 2	Primary products				Secondary products			Total production
	A	B	C	D	A	E	F	
Industry 1	25	48	7			20		100
Industry 2			30	45	5		20	100

The same change reduces the coverage ratio for industry 1. In Table 2, industry 1's coverage ratio declines to 70, [(25+48+7)/(25+48+7+30+5)]. This change occurs because product C is now defined among industry 1's primary products. Generally, the coverage ratio is computed on a wherever made basis, so the total output of product C (7 in industry 1 and 30 in industry 2) is added to industry 1's denominator. For industry 2, the coverage ratio remains the same, again because product C was already included in its list of primary products.

In this instance, industry 1 qualifies for 4-digit industry status because both specialization and coverage ratios meet the minimum values. Industry 2 still does not qualify as a 4-digit industry because its specialization ratio remains below 80.

If, in a third example, product A is also defined as being primary for both industries, the specialization and coverage ratios would change for industry 2, analogously to the example

already given for industry 1. With this further change in definitions, each industry has specialization and coverage ratios that meet or exceed the thresholds and both qualify for designation as a separate 4-digit SIC industry.

TABLE 3	Example 1 Industry		Example 2 Industry		Example 3 Industry	
Ratio	1	2	1	2	1	2
Specialization	73	75	80	75	80	80
Coverage	94	91	70	91	70	71
Status	fails	fails	qualifies	fails	qualifies	qualifies

Table 3. presents the specialization and coverage ratios for each of the three examples discussed above.

Products may be primary to more than one industry in the present system for several reasons. An explicit example in the SIC is a product made from produced versus one made from acquired (transferred or purchased) inputs, e.g., iron and steel forgings. Forgings are made in integrated steel works (SIC 3312), establishments that manufacture pig iron and steel intermediate products from raw material inputs. Integrated steel works can produce semi-finished and finished products from those intermediate products.

Forgings are also made in forging establishments (SIC 3462), establishments that manufacture semi-finished and finished iron and steel products only from intermediate iron and steel product inputs. The SIC definition of these primary products includes an industry-of-origin qualifier.

In addition, in the SIC identical primary products occur in different 4-digit industries implicitly, without an "industry-of-origin" qualifier. This occurs whenever products are made in different SIC divisions. For example, microcomputers are produced in establishments in the Manufacturing Division, and are also assembled in the Wholesale Trade and in the Retail Trade Divisions.

Appendix 2: Possible Data Variables and Presentation Examples

Geography	Year	Product/ Services Code	Product Code Description	NAICS Industry	NAICS Industry Title	Number of Establishments With the Product	Total Sales, Shipments, Receipts, Revenue, or Business Done of Establishments With the Product ($1,000)	Product Value of Sales, Shipments, Receipts, Revenue, or Business Done ($1,000)	Industry Contribution to Total Product Value of Sales, Shipments, Receipts, Revenue, or Business Done (%)	QUALITY MEASURE FOR PRODUCT ESTIMATE OR OTHER AS REQUIRED (Note: different columns may be needed following industry totals, product totals, establishment estimates, etc.)
U.S. Level	2007	8.2.1.2	Dog Food	000000	All Contributing Industries			10,786,115	100	
U.S. Level	2007	8.2.1.2	Dog Food	311111	Dog and Cat Food Manufacturing	230	9,870,592	8,689,333	80.6	
U.S. Level	2007	8.2.1.2	Dog Food	311119	Other Animal Food Manufacturing	117	12,697,323	1,152,235	10.7	
U.S. Level	2007	8.2.1.2	Dog Food	311613	Rendering and Meat Byproduct Processing	8	11,254,320	687,159	6.4	
U.S. Level	2007	8.2.1.2	Dog Food	325411	Medicinal and Botanical Manufacturing	3	14,799,838	257,388	2.3	

Geography	Year	NAICS Industry	NAICS Industry Title	Product/ Services Code	Product Code Description	Number of Establishments With the Product	Total Sales, Shipments, Receipts, Revenue, or Business Done of Establishments With the Product ($1,000)	Product Value of Sales, Shipments, Receipts, Revenue, or Business Done ($1,000)	Product Value of Sales, Shipments, Receipts, Revenue, or Business Done as % of Industry Sales, Shipments, Receipts, Revenue, or Business Done	Product Value of Sales, Shipments, Receipts, Revenue, or Business Done as % of Total Sales, Shipments, Receipts, Revenue, or Business Done of Establishments With the Product	Number of Establishments With the Product as % of Industry Establishments	QUALITY MEASURE FOR PRODUCT ESTIMATE OR OTHER AS REQUIRED (Note: different columns may be needed following industry totals, product totals, establishment estimates, etc.)
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	000000	Industry total	264	X	14,390,209	100	100	100	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	8.2.1.2	Dog Food	230	9,870,592	8,689,333	60.4	88	87.1	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	8.2.1.3	Cat Food	187	5,960,475	4,483,369	31.2	75.2	70.8	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	25.1.18.1	Chicken and Turkey Feed	D	D	11,491	<0.1	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	25.1.18.2	Cattle Feed	D	D	D	D	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	25.1.18.3	Swine Feed	D	D	D	D	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	25.1.18.4	Other Livestock and Poultry Feed	D	D	D	D	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	25.1.18.5	Specialty Feeds, n.e.c.	D	D	D	D	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	25.2.1.1	Resales of Animal Feed without further processing (wholesale)	46	9,376,000	976,622	6.8	1	17.4	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	28.1.1	Contract work for animal feed	D	D	D	D	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	20.6.1	Receipts for repair of commercial and industrial machinery	D	D	D	D	D	D	
U.S. Level	2007	311111	Dog and Cat Food Manufacturing	99.99.99	Other goods and services	8	1,024,205	6,976	<0.1	0.1	3	

Appendix 3: Why the Economic Census, Why NAPCS, and Why Now?

Background and Current Environment

The Census Bureau's Economic Directorate collects a wide range of economic statistics. These statistics include sub-annual, annual, and quinquennial data covering a large section of the economy. The data series include monthly and quarterly indicators, annual industry data and quinquennial benchmark data to set the levels for all other estimates. The only major sector not addressed by the Economic Directorate is the agriculture sector covered by the Department of Agriculture.

The Economic Directorate has a breath of methods and practices almost as wide as the scope of the data produced. Each sector or subject matter area has developed organically in methods and presentation. Unique surveys developed to answer specific questions in some cases. In other cases, answers came from additional inquiries within existing surveys. Sometimes, decisions were based on the most appropriate instrument. Other times decisions were based on what program was up for revision when the data were required. This decision process was practical and pragmatic but resulted in substantial inconsistencies in survey units, estimation methods, and publication variables that unnecessarily complicated economy-wide analysis. The variations that cause analysis hardships also generate significant costs in the production of data. In short, the Economic Directorate is using a costly and complex set of processes to produce data not easily used and combined to study the entire economy.

Why the Economic Census?

The Economic Census is the most comprehensive and detailed data collection performed in the Economic Directorate. The Economic Census plays an important role in assignment of industry codes in the business register, provides a sampling frame for various other surveys, and provides benchmark data for related annual and sub-annual programs. The Economic Census is the starting point and foundation for other programs that produce economic data at the Census Bureau and at other Federal statistical agencies.

There is a single broad schedule for conducting the Economic Census. All survey instruments targeting types of respondents are mailed out at the same time. There is a single due date and a single date for closeout of processing across divisions and subject matter areas. This presents a manageable framework for improvement. The Economic Census is also one of the most expensive data programs in the Economic Directorate. A percentage reduction in cost will have a much greater impact on the total budget for economic statistics in the Economic Directorate. The Economic Census has a five-year periodicity that allows for considered planning and revision because data are only required for years ending with 2 and 7. Historically, the Economic Directorate has implemented classification and other changes in the Economic Census first. Implementing change through the Economic Census is a proven method of instituting change.

Why NAPCS?

Consistent presentation of output products (NAPCS) across the entire Economic Census provides a clear outcome. The ability to present comparable economy-wide data requires improved consistency in definitions, sampling, forms design, data editing, estimation of non-mail and nonresponse cases, tabulation, and dissemination. NAPCS provides the opportunity to review current practices with a focus on a common goal. This drive for consistency will eliminate duplication in systems, reduce complexity, and provide a standardized environment to better apply future enterprise solutions such as the use of innovative technology solutions and adaptive design principles. Implementation of the change necessary for NAPCS will also provide additional opportunities to consider methods that will reduce or eliminate paper in the processing of the Economic Census, improve consistency in editing and analysis practices, improve data products, review data disclosure practices, improve respondent focus, and standardize nonresponse techniques. Each of these opportunities could be addressed individually but implementation of NAPCS provides a common target that serves as the baseline to measure success. Implementation of NAPCS is not the be all and end all of Economic Census re-engineering. Implementation of NAPCS provides the vehicle to focus these disparate activities on a common goal.

Why Now?

The Census Bureau and the Economic Directorate are facing budgetary constraints now and in out years that will limit the ability to continue current practices in the collection, estimation, and publication of economic statistics. Yet these very statistics are critical to a sound understanding of the economy and are vital to our national accounts programs and price deflators. The challenge faced by the Census Bureau is how to continue to provide similar data but provide it in a much more cost efficient manner.

Although the 2012 Economic Census is currently in the field, planning for the next Economic Census is already underway. Early work with a focused goal is the key to successful change. The alignment of schedules and the ability to address a program with substantial cost provides a perfect opportunity to begin work now to reduce cost and increase efficiency and data comparability. In fact, a later date would limit the range of possible changes and preclude transformational change that has the highest potential for savings in continued operations.