State and Local Government Sample Design
for the National Compensation Survey October 2012

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Abstract

The National Compensation Survey is conducted by the Bureau of Labor Statistics to compute measures of the pay and benefits for America's workers. Since the early 1990's, the survey design used a three-stage sample design to select samples of areas, establishments, and jobs for which wage and benefit data are collected periodically over a five-year rotation. In 2011, we presented a new two-stage sample design for private industry establishments that introduces a three-year rotation of establishment samples. This new design is a national design without any area sampling under which we select samples of establishments and jobs in the two stages of selection. This paper will explore design alternatives for selection of establishments in the State and local government sectors of the economy that are more consistent with the new private industry design. Design topics that are being studied and will be presented include sample rotation, allocation, sample frame preparation, establishment selection, and sample initiation scheduling. Recommendations for the design to be used when selecting future public sector samples will be presented.

Key Words: survey design, sample allocation, respondent burden, sample rotation

1. Introduction

The National Compensation Survey (NCS) is an establishment-based survey conducted by the U.S. Bureau of Labor Statistics (BLS). Over the last several decades, the NCS has undergone many changes leading up to the survey design currently in operation which has been used by NCS since the mid-1990's. In recent years, several potential changes to this design have been explored due to budget cuts, known issues with the current design, and an on-going effort to make the survey more efficient. In February 2011, the Bureau of Labor Statistics began implementing a change to the Locality Pay Survey (LPS) component of NCS which is used to produce annual occupational earnings data for the nation, each Census Division, and selected geographic areas. When this change is implemented, these occupational earnings estimates will be produced using a modeling technique that combines the national data from the NCS with the locality data from the Occupational Employment Statistics (OES) survey (BLS Handbook of Methods Chapter 3). All other data estimates computed using NCS data, including the Employment Cost Index, Employer Costs for Employee Compensation, and various measures of access and participation in employer provided benefits will continue to be produced using the data collected by NCS. With the elimination of the need to produce locality estimates directly from the NCS sample, the remaining NCS outputs can follow a more efficient national

based sample design. At the same time, many of the sample design issues associated with the current design will be addressed by the redesign of the NCS current sample design.

The planned changes to the NCS sample design are considered major revisions to a Federal Government survey and are subject to the revision guidelines in the Office of Management and Budget Standards and Guidelines (OMB Standards 2006) and further described in the OMB Memorandum on "Guidance on Agency Survey and Statistical Information Collections" (OMB January 2006). Section 1 of these standards is applicable to the work on a new survey design for NCS. With this redesign and the research supporting the recommended changes, NCS has attempted to address all the concerns in these standards.

The current sample design issues and our plans for evaluating them were presented in the 2010 JSM paper "Evaluating Sample Design Issues in the National Compensation Survey" (Ferguson et al, JSM, 2010). A second paper, "Update on the Evaluation of Sample Design Issues in the National Compensation Survey" (Ferguson et al, JSM 2011) provided an update on the previous work and included several recommended changes to the sample design for the private sector of the economy. This paper presents the research and proposed changes to the sample design for the State and local government, or public, sectors of the economy. Section 2 provides an overview of the current NCS sample design for the State and local government sectors of the U.S. economy followed by an overview of the proposed public sector NCS sample redesign in Section 3. Section 4 describes our proposed recommendations for the new public sector sample design, describes our plans for transitioning from the current design to the new design, summarizes the research and analysis efforts that were done to develop the recommendations, and highlights issues that still need to be resolved. Finally, Section 5 provides a summary and conclusion of the redesign efforts for State and local government establishments.

2. Overview of the Current NCS State and Local Government Sample Design

The NCS studies workers in private industry establishments, and in State and local government, in the 50 States and the District of Columbia. Establishments with one or more workers are included in the survey. The BLS Quarterly Census of Employment and Wages (QCEW) serves as the sampling frame for the NCS survey. The QCEW is created from State Unemployment Insurance (UI) files of establishments, which are obtained through the cooperation of the individual State agencies (BLS Handbook of Methods, Chapter 5).

Through 2012, the NCS sample consists of five rotating replacement sample panels for private industry establishments, an additional sample panel for State and local government entities, and an additional panel for private industry firms in the aircraft manufacturing industry. Each of the sample panels is in the sample for at least five years before it is replaced by a new sample panel selected annually from the most current frame. Beginning in 2012, NCS began transitioning to a three year rotation for private industry establishments as described in the 2011 JSM paper by Ferguson et al. The remainder of this paper will focus on the design and rotation strategy for the sample panel for State and local government entities.

The current NCS State and local government sample was selected using a three stage stratified design with probability proportionate to employment size (PPS) sampling at each stage. The first stage of sample selection is a probability sample of areas; the second stage is a probability sample of establishments within sampled areas; and the third stage is a probability sample of jobs within sampled areas and establishments.

The first stage of the NCS sample occurs at the national level across geographic areas. These Primary Sampling Units (PSUs) are based on the 2003 Office of Management and Budget (OMB) area definitions. Under the OMB definitions there are three types of statistical areas. These area types are defined as Metropolitan, Micropolitan, and Combined Statistical Areas. Combined Statistical Areas (CSAs) are defined as a combination of adjacent Metropolitan and Micropolitan areas that meet certain conditions set by OMB. A number of counties exist outside of these areas and are referred to as Outside Core Based Statistical Areas (CBSA). For selection purposes, PSUs in these outside CBSA's consist of one or more adjacent counties. Where possible the counties were organized into clusters to create heterogeneous primary sampling units.

In 2004, a new area sample was selected for the NCS. This sample contained 152 areas. In this sample 57 areas were selected with certainty, where certainty areas are defined as having employment greater than 80 percent of the final sampling interval, which is obtained through an iterative process. The remaining areas consisted of 60 non-certainty metropolitan areas, 22 non-certainty micropolitan areas, and 13 non-certainty outside CBSA county clusters.

The second stage of this design occurs at the establishment level within each selected area. For State and local government entities, a sample of establishments is selected approximately once every ten years, shortly after the selection of a new sample of areas. The State and local government establishments on the QCEW sample frame within sampled geographic areas are refined (see section 4.3) prior to establishment sample selection to help ensure that the frame represents establishments as defined by NCS.

Refined establishments in the sampling frame are stratified by ownership (State versus local) and industry. Industries for the NCS are defined using the North American Industry Classification System (NAICS). Within each of the ownership by industry strata, NCS employs PPS systematic sampling with frame employment as the measure of size (MOS). To ensure that no unit has a probability of selection greater than one, we identify all units that would be selected with certainty before the sampling process, designate them as part of the sample, and set their sampling weights to one. During the selection process, approximately one-half of the establishments, the index portion, are sub-sampled and flagged to support the ECI, ECEC, and NCS Benefits products as well as the NCS wage products. The remaining establishments, the wage-only portion, were flagged to support the NCS wage products only, although those units are no longer being collected (see Ferguson et al 2010). After the sample of establishments is selected, it is used for the third stage of the sampling process.

The third stage of this design occurs at the occupational level within each selected establishment. A sample of jobs is drawn from each of these establishments using PPS systematic sampling where the number of employees in the job is the measure of size. To ensure consistency across all establishments, the Standard Occupational Classification (SOC) manual is used to classify the selected jobs into occupations based upon the assigned duties. After this selection and classification we create our smallest aggregate

unit known as a quote, which is a distinct combination of time or incentive pay, work level, collective bargaining status, full-time or part-time status, and establishment defined occupation.

Establishments in each sample are initiated over a fifteen month time period. During the initiation process, respondents are identified, jobs are selected, and respondents provide BLS with initial information about each selected job quote. All establishments are asked to provide BLS with employer provided wages and salaries for all workers in each selected job quote. Establishments in the index portion of the sample are also asked to provide the cost of each employer provided benefit, a description of each benefit offered to the employees in each selected job, and benefit access and provisions data such as the number of employees who are offered the benefit, the number who partake of the benefit, and detailed descriptions of the benefit.

State and local government respondents are asked to provide periodic updates for the initiated jobs for the next ten years. Index respondents are asked to provide quarterly updates while wage respondents are asked to update their data annually. However, due to the implementation of an alternative to the Locality Pay Program, NCS stopped asking wage respondents to update their data in early 2011. At this time, only the index respondents are being asked to provide updates to their NCS data. At the end of the ten year update period, NCS thanks the respondents for supporting our survey and ceases to ask for updated data unless the respondent has been selected in the next public sector sample.

3.   Overview of the Proposed New NCS Sample Design

The recommended sample design for the State and local government sector is similar to the new design for private industry. As has been implemented for private industry samples, the redesigned State and local government sample will have two stages of sampling instead of the current three stages. In the first stage, a sample of establishments will be selected and in the second stage, a sample of jobs will be selected from sampled establishments. As with the current design, a new public sector sample will be selected approximately once every 10 years. State and local governments are sampled less often than private industry because of the traditionally high response rates and slower change in occupational mix for this sector of the economy. All sampled establishments will be used to support the production of all NCS product lines.

The NCS will continue to use the most recent data available on the BLS QCEW (Quarterly Census of Employment and Wages) database to generate each establishment frame. For allocation and selection purposes, the NCS will use a measure of size (MOS) based on the total employment from the frame and will allocate sample sizes to each sampling cell in proportion to the total measure of size in the cell. This will ensure that the NCS public sector sample contains the same proportions of industry sample as the frame employment. The very large establishments will continue to be selected with certainty.

All sample units will be assigned to one of four collection panels for initiation. Once a sample of establishments is selected and collection panels have been assigned, BLS Regional Office employees will review and refine the sample before collection begins. As part of this refinement process, establishments may be moved from one collection

panel to another to coordinate initiation in government entities with more than one establishment and/or to reduce travel costs associated with initiation efforts. Establishments will be initiated over a fifteen month period with one collection panel required to be completed every three months. Once initiated, a unit will then be updated quarterly until it rotates out of the design, which will be approximately ten years after the entire sample is initiated. No newly initiated establishment will be used in the NCS estimates until the entire sample has been initiated and updated for a common/base quarter. During this base quarter, data for the newly initiated sample as well as the prior sample will be updated. After the base quarter is completed, the entire sample will be added to the data available for estimation while the old public sector sample in estimation will be dropped from further updates and inclusion in the estimates.

Although NCS is implementing a new sample design, we are not making any changes to the data collection processes as a result of the new design. The data elements to be collected, the timing of the collection processes, and the collection methods and modes will remain the same as they are under the current design and the newly implemented private sector sample design unless they are changed for other business reasons. Thus, we expect that the State and local government respondent burden associated with our survey will not change.

4. Proposed NCS Sample Design – Recommendation, Research, Transition, and Remaining Efforts

This section of the paper will provide more detail about the various components of the recommended new sample design for State and local government entities, summarize the approach used to research each component of the design, describe the research findings and analysis, and identify any remaining issues and research needed to complete the design.

4.1 Design Summary and Transition
The NCS plans to move forward with this new national based sample design for State and local government establishments once the first three year rotation of private industry samples has been initiated under the new design. Collection of the first public sector sample under the national based design is scheduled to begin in the spring of 2015. After a fifteen month initiation period and one quarter for base period wage and benefit cost collection, this sample will be used in NCS estimates for the first time for December 2016 estimates to fully complete the transition from the old area-based design to the new national design for all NCS in-scope sectors of the economy. During the time period that a new State and local government sample is sampled and initiated, the existing private sample will not be replaced.

4.2 Establishment Sample Frame
Sample frames will be constructed from the BLS QCEW database using the most recent quarter available. The frames for State and local government establishments must include all establishments from all 50 States and the District of Columbia for all in-scope industries. The in-scope industries for NCS are not changing in the new sample design and are listed in Appendix 1 for public industry. All establishments in the QCEW database which are coded as belonging to a State government or local government in these in-scope industries will be in-scope for establishment sampling.

4.3 Establishment Sample Frame Refinement and Preparation
For the State and local government sampling, the NCS has performed a frame refinement process in the past. The purpose of this refinement process was to ensure that the frame establishments meet the NCS establishment definition. NCS defines an establishment to be an agency or entity such as a school district, college, university, hospital, nursing home, administrative body, court, police department, fire department, health or social service operation, highway maintenance operation, urban transit operation, or other governmental unit. It provides services under the authority of a specific State or local government organization within a defined geographic area or jurisdiction and within defined publication levels by industry.

In 2005, State and local government refinement was conducted for approximately 102,000 public sector establishments in the 152 selected geographic areas (see Springer 2007). During the refinement, some individual establishments were clustered into a single unit for sampling while other establishments were split into multiple sampling units. However, there were more clusters formed than splits made and the refined frame contained about 44,000 establishments for sampling purposes. This refinement was very labor intensive and took about 2.7 person years of effort to complete over a three month time period. Once initiation of the sample was completed, we conducted an analysis of the results of the frame refinement and the impact of that refinement on the initiation process. In general, the information gained during refinement, particularly among the large government systems, improved field staff's familiarity with the reporting units and sample unit identification improved as a result of the refinement.

As NCS moves to a national design, the size of the establishment frame will grow since it will not be constrained to just the sampled geographic areas. In 2011, the public sector frame of State and local government establishments contained approximately 230,000 establishments across the entire country. If refinement is conducted for this set of establishments using a similar process to that used in 2005, we anticipate that it will take about 6.1 person years of effort to complete the refinement – a resource level that would be difficult to support with current NCS employees. Although this is a large level of effort, there is some concern that response rates could drop without doing at least a partial refinement of the State and local government establishments on the QCEW sample frame. We plan to conduct research to identify the frequency of refinement changes made by ownership, geographic area, and industry to see if it would be possible to conduct a partial frame refinement to increase the chances of good response while minimizing the problems that could be caused by not doing any frame refinement.

To prepare the frame for sampling, several key variables are added to the data extracted from the QCEW database. This includes codes to create geographic area strata, aggregate industry strata, detailed industry categories, sampling cells, and an adjusted employment value to be used as the measure of size for each establishment.

First, every establishment must be assigned a geographic area code used to stratify the sample for allocation and selection. By stratifying the sample into these geographic areas, NCS will be able to continue to support publication of local area employment cost level and index data for these large metropolitan areas. As with private industry sampling, NCS will use 24 geographic areas, one for each of the 15 largest metropolitan areas by employment and one for the remainder of each Census Division as shown in Appendix 2.

The current list of largest metropolitan areas was developed using employment data from the 2000 Census.

Second, each establishment is assigned to one of five aggregate industry strata and one of ten detailed industry categories based on its NAICS code on the QCEW database. At the aggregate industry level, State and local government establishments will be combined for a total of five. This is different than the current design where State government establishments are separated from local government and put into their own industry strata. NCS will continue to use the current ten detailed industries that are used for both State and local government samples. Nine of the current detailed industries are mapped to one and only one of the aggregate industries. However, the tenth detailed industry currently used in sampling, Other Service Providing, has been split into two sub-industries – one of which is mapped to Financial Activities and the other of which remains in Service Providing. See Appendix 1 for a list of these aggregate industries, the detailed industries, and their associated NAICS codes. The aggregate industries being used for allocation and sample selection were created by analyzing the levels of aggregation in the various NCS publication lines and correspond to the aggregate industries used for NCS private industry sampling.

Next, each establishment is assigned to a sampling cell. The sampling cells are created as unique combinations of geographic area strata and aggregate industry strata. So there are a total of 120 possible sampling cells – one for each combination of the 24 geographic areas and the five detailed industries. Each establishment is assigned to one and only one of the sampling cells. Additional research has been conducted to look at establishments with zero employment and the results of that study are available in a separate paper, "Evaluation of Alternative Measures of Size for Sampling of Establishments in the NCS" (Rhein et al, JSM 2012).

Finally, each establishment on the frame will be assigned an adjusted employment. For most establishments, the adjusted employment will be set equal to the third month's employment for the most recent quarter of QCEW data. However, if this monthly employment is equal to zero, the adjusted employment will be set equal to 1. In this manner, all in-scope establishments from the QCEW will be given a chance of selection even those births or seasonal establishments with no employees in the designated month.

4.4 Establishment Sample Allocation and Certainty Establishment Identification
For State and local government samples, NCS will continue to conduct a sample allocation process and identify certainty establishments each time an establishment sample is selected using an overall sample size that is aligned with the current budget. If budget or resource levels change significantly between the selection of public sector samples, NCS will need to re-evaluate the timing and/or sample size for the next public sector sample. If budget situations change too much before the next schedule, NCS could also consider adjusting the timing of the next sample and/or supplementing the sample for this segment of the economy or subselecting the original sample.

The sample allocation process starts with a total budgeted sample size. First, one establishment is allocated to each of the 120 sampling cells. The remaining total sample size is then allocated to the five aggregate industry strata in proportion to the total employment within each industry. Finally, each of the five aggregate stratum allocations is divided among the 24 geographic areas in proportion to the total employment of the frame units in the areas, resulting in 120 area-industry cell allocations. An ordered

rounding technique will be used to distribute the decimal portion of the allocations at each stage of this process. Under this technique, the decimal portions of the allocations are summed across all cells to obtain the remainder, R, that should be distributed to the cells. The allocations are then ordered by the decimal portion of the allocation in descending order and the first R cells are rounded up while the other cells are rounded down. This technique ensures that the total integer allocation is always equal to the desired sample size.

Certainty units are identified using the initial cell allocations and the establishment MOS. When an establishment MOS is greater than the total employment in the cell divided by the initial cell allocation for the cell, the establishment is flagged as a certainty unit and the remaining cell allocation is reduced by the number of certainty selections. This identification process is repeated until no more certainty units exist in any cell. Each initial area-industry cell allocation is then reduced by the number of certainty units in the cell to create 120 non-certainty area-industry cell allocations.

Although this approach has been tested and the NCS is satisfied with the outcome, there are still other approaches that could be researched as they may result in an even more efficient approach. Some other options include creating separate sampling cells for State government and local government, using the ten detailed industries for allocation and sampling instead of the five aggregate industries, and adjusting the measures of size in manners similar to the process used for private industry sampling. In addition, we plan to explore other allocation options that employ variances of our estimates and prior response rates instead of or in addition to our current proportional allocation.

4.5 Establishment Sample Selection

Under the proposed new design, NCS will select an independent non-certainty sample of State and local government establishments within each of the five aggregate industry and 24 geographic area sampling cells. Within each of the sampling cells, units will be sorted by State vs. local government ownership, detailed (10) industry, MOS, and establishment identification number. The selection process will follow a systematic Probability Proportionate to Size (PPS) approach where the measure of size is the adjusted employment value from the frame. The certainty units identified in the previous step will be added to the non-certainty sample to form the entire establishment sample.

Sample weights will be assigned to each of the selected non-certainty establishments in the sample to represent the non-certainty portion of the frame. Units selected as certainty will be self-representing and will carry a sample weight of one. The sample weight for the non-certainty units will be the inverse of the probability of selection, or the sampling interval for the sampling cell (area by aggregate industry) divided by the MOS for the sampled unit.

This sample design was tested using sample simulations in which we obtained a complete sample frame from the second quarter of 2011, assigned measures of size, executed the allocation process, and selected certainty establishments. We then selected 100 non-certainty samples and evaluated the resulting samples to ensure that the total weighted employment for the samples matched the frame employment and that the desired sample sizes were obtained. As described later in this paper, these simulated samples also helped us analyze collection resources needed, response rates, and publication levels under the new design.

4.6 Initiation Collection Panel Assignment

All sampled units will be assigned to one of four collection panels for initiation. The units will be assigned such that there is equal distribution across all four collection panels within Regional Offices, geographic areas and industries. Before the sample files are finalized, Regional Office staff will review the initial panel assignments and will have the opportunity to move establishments from one panel to another to better coordinate the collection efforts. This process is important especially when multiple locations of a government entity have been sampled or when the sample only contains a few units in a remote geographic area. However, the regions will be instructed to move units in a way that results in a relatively equal distribution of establishments across each of the four initiation panels. National Office staff will review the panel change requests to ensure that the sample distributions are still relatively even.

Since we will continue to use our current processes, no detailed analysis or research was conducted on how to assign initiation panels. As is currently done, special initiation procedures are followed for establishments with seasonal employment to ensure that the seasonal workers are given a chance of inclusion in the sample and are reflected in the NCS sample, regardless of when the initiation occurs. Thus, it does not matter which panel is assigned to any particular establishment in the sample.

Extensive analysis was done to determine how many field staff will be needed to complete the initiation efforts each quarter during the year when public sector samples are initiated. While conducting the allocation and certainty identification processes, we also researched the selection of the non-certainty establishments. In addition to the analysis that was done for allocation validation, we computed average sample sizes by BLS regional office areas for sample allocations across all the simulated samples. These average sample sizes were used to analyze BLS data collection resource needs by regional office once the new design is fully implemented. Additionally, we also compared the expected sample sizes for the public sector to those that we expect to see in the private sector. As shown below in Table 1, the distribution of sample sizes is similar between the two sectors of the economy.

Table 1. Sample Size Comparisons by BLS Collection Region						
Region	**Current Gov't Sample**		**Government Simulations**		**Private Simulations**		**Gov't to Priv % Diff**
Boston	166	10.40%	182	11.42%	408	12.36%	-0.94%
Philadelphia	207	12.97%	203	12.72%	442	13.37%	-0.65%
Atlanta	284	17.79%	291	18.23%	596	18.05%	0.17%
Chicago	322	20.18%	293	18.36%	669	20.25%	-1.89%
Dallas	296	18.55%	323	20.22%	598	18.10%	2.12%
San Francisco	321	20.11%	304	19.06%	590	17.87%	1.19%
Total	**1,596**	100%	**1,596**	100.00%	**3,302**	100.00%	0.00%

Despite the small differences, a 2% difference could result in a full person's effort to initiate a government sample. Government units typically take almost twice as long to initiate as private establishments. Given this slight concern, our Office of Field Operations staff is currently evaluating the combined public and private data carefully to ensure that the staffing levels in each region will be appropriate to collect and process the data for both the public and private sector samples when the new public sector sample is fielded in the spring of 2015.

4.7 Initiation, Data Updates, Response Rates, Estimation, and Publication
Under the current NCS design, some establishments are flagged for wage only collection, while others are flagged for wage and benefit collection. Under the proposed new design, wage and benefit data will be collected from the entire sample. NCS will continue all collection activities under existing on-going processes and procedures. For all NCS outputs except the occupational earnings data, NCS will use the current estimation processes and procedures and will attempt to publish all levels of detail currently included in our publications. As described at the beginning of this paper, occupational earnings data by worker characteristics will be estimated using a modeling technique that combines earnings data from the OES with worker characteristics from the NCS. The specific modeling technique is still being finalized and will be described in a future paper.

As the new design rotates into estimation, NCS will be generating estimates and computing variances using a mix of samples selected from the old area-based design and the new national design. This will add some complexity to the estimation processes, and may cause some short-term loss of publishability due to the mix of sample types.

To determine the effect of the new design on the expected response rates for State and local government samples, we computed response rates for the most recent NCS public sector sample and applied those rates to the simulated samples obtained during the allocation research. We used response rates computed by establishment size class and detailed industry grouping for the initial analysis. We then did an analysis by looking at response rates by Census divisions. Table 2 below shows that, although there is some variation at the industry level, the overall response rates for our samples should not change with the new design.

Table 2: Unweighted Response Rates - Current & Projected											
	Expected Sample Sizes Under Proposed Design		Sample Sizes and Response Rates for Recent Sample Under Current Design						Projected Results under Proposed Design			
Industry	Sample Size	% Dist	Estab Count	% Dist	Viable Estabs	Viable Rate	Usable Estabs	Usable Rate	Viable Estabs	Viable Rate	Usable Estabs	Usable Rate
Goods Producing	39	2.4%	18	1.1%	17	94.4%	16	94.1%	36	92.3%	32	88.9%
Trade, Transportation and Utilities	47	2.9%	53	3.3%	52	98.1%	47	90.4%	46	97.9%	42	91.3%
Elementary and Secondary Education	596	37.3%	622	39.0%	620	99.7%	509	82.1%	585	98.2%	489	83.6%
Colleges and Universities	182	11.4%	207	13.0%	206	99.5%	182	88.3%	182	100.0%	161	88.5%
Rest of Education	6	0.4%	4	0.3%	4	100.0%	3	75.0%	3	50.0%	2	66.7%
Hospitals	92	5.8%	98	6.1%	96	98.0%	84	87.5%	91	98.9%	78	85.7%
Nursing Homes	21	1.3%	15	0.9%	14	93.3%	13	92.9%	19	90.5%	18	94.7%
Rest of Health and Social Services	33	2.1%	25	1.6%	24	96.0%	24	100.0%	24	72.7%	24	100.0%
Public Administration	488	30.6%	497	31.1%	491	98.8%	459	93.5%	480	98.4%	448	93.3%
Other Service Producing	92	5.8%	57	3.6%	55	96.5%	47	85.5%	90	97.8%	71	78.9%
Total	1596	100.0%	1596	100.0%	1579	98.9%	1384	87.7%	1556	97.5%	1365	87.7%

To confirm that the sample design will support our current levels of publication, we compiled a master list of all the levels of detail currently being released for the ECI, ECEC, and the Benefits Incidence and Key Provisions products using the State and local government samples. This list of estimates included various industry break-outs, size of establishment categories, the 15 largest metropolitan areas, Census Divisions, and Census Regions. We then used the results from the simulated samples obtained during the research process to determine if we expect to have enough data to continue releasing each of our current estimates. We broke the publication cells into three categories: those with less than 50 sampled establishments, 50 – 200 establishments, and 200 or more establishments. If a publication line had at least 200 sampled establishments, NCS assumes that we will be able to continue to publish the estimates. If a publication line had 50 or more but fewer than 200 sampled establishments, NCS expects that we will likely still be able to release the data but will monitor the situation carefully to ensure that the estimates meet our reliability and confidentiality publication criteria. Publication lines with less than 50 sampled establishments would likely be non-publishable.

Based on this analysis, no published estimates fell below our imposed threshold of 50 or fewer sampled establishments. Further, there are only seven estimates that are currently published that fall into the 50 – 200 size category, including two detailed industries, four Census division totals and one employment size class. In all seven of these cases, the current NCS sample size is also below 200, but remains publishable. Additionally, the simulated sample yielded a sample size that was 90% or more than the current sample size and in three of the categories is actually larger than the current sample size. As the new design is implemented, NCS will pay careful attention to these estimates to ensure that they continue to meet all publication standards. Should any of them fail to meet publication standards, they may need to be dropped from one or more of our publication lines.

Data used to generate the detailed provisions estimates come from a single sample using only data collected during the initiation process. When NCS began implementing the new sample design, we also took an overall sample size reduction. So the next State and local government sample which will be selected under the new design will be smaller than the last sample selected under the old design. As a result, we may see some adverse effects on our ability to publish accurate detailed data for this product line. However, we have not yet done any research to validate this assumption.

State and local government data will be used in our estimation processes using the same methods and estimators as will be used for the private industry samples under the new design. Under the new design, we plan to continue computing variances using the current Faye's methodology described in the BLS Handbook of Methods, Chapter 8. The rest of the estimation processes will use the current methods and formulae. NCS also plans to continue publishing all current outputs for the ECI, ECEC, and NCS Benefits products in the same format and at the same time as is currently done.

5. Summary and Conclusion

The NCS has conducted several different research and analysis efforts to identify options and recommended approaches for a new sample design for the State and local government sectors of the economy. Barring any unforeseen issues, we plan to implement this design with the next public sector sample to be selected. That sample will be drawn in the fall of 2014 and will be fielded for initiation in the spring of 2015. After a 15 month initiation period, the sample will rotate into estimation with estimates generated for the December 2016 reference period completing the NCS rotation from the old design to the new national two-stage design. While we have a design that has been carefully reviewed and tested using sample simulations, there are still many implementation issues that need to be resolved and other design options that can be explored. We will work on these issues as resources permit.

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Note: Any opinions expressed in this paper are those of the author(s) and do not constitute policy of the Bureau of Labor Statistics.

Appendix 1: NCS Industry Cells for Sample Selection and Allocation

Aggregate Industry	Detailed Industry	Code	NAICS Codes
Education	Elementary and Secondary Education	30	6111
	Colleges and Universities	40	6112, 6113
	Rest of Education	50	61 excl 6111-6113
Financial Activities	Other Service-producing - Part A	99 - A	51, 52-53
Goods Producing	Goods-Producing	10	21, 23, 31-33
Health Care	Hospitals	60	622
	Nursing Homes	70	623
	Rest of Health and Social Services	80	62 excl 622-623
Service Providing	Trade, Transportation, and Utilities	20	42, 44-45, 48-49, 22
	Public Administration	90	92 excl 928
	Other Service-producing - Part B	99 - B	54-56, 71-72, 81 excl 814

Appendix 2: NCS Geographic Area Cells for Sample Selection and Allocation

Area Name
Atlanta-Sandy Springs-Gainesville, GA-AL CSA
Boston-Worcester-Manchester, MA-NH CSA
Chicago-Naperville-Michigan City, IL-IN-WI CSA
Dallas-Fort Worth, TX CSA
Detroit-Warren-Flint, MI CSA
Houston-Baytown-Huntsville, TX CSA
Los Angeles-Long Beach-Riverside, CA CSA
Minneapolis-St. Paul-St. Cloud, MN-WI CSA
New York-Newark-Bridgeport, NY-NJ-CT-PA CSA
Philadelphia-Camden-Vineland, PA-NJ-DE-MD CSA
San Jose-San Francisco-Oakland, CA CSA
Seattle-Tacoma-Olympia, WA CSA
Washington-Baltimore-No. Virginia, DC-MD-VA-WV CSA
Miami-Fort Lauderdale-Miami Beach, FL
Phoenix-Mesa-Scottsdale, AZ
Rest of New England Census Division
Rest of Middle Atlantic Census Division
Rest of East South Central Census Division
Rest of South Atlantic Census Division
Rest of East North Central Census Division
Rest of West North Central Census Division
Rest of West South Central Census Division
Rest of Mountain Census Division
Rest of Pacific Census Division