

# Overview of the NCS: Summer 1998

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The National Compensation Survey (NCS—formerly known as COMP2000) integrates three BLS surveys that provide a diverse set of measures of employee compensation. Much has been accomplished toward reaching this goal and additional improvements are underway. This article answers the questions: Where are we now? How did we get there? And where are we going?

NCS will use a single sample that will provide data on occupational earnings, employer costs for wages, salaries, and benefits, and details of employer-provided benefit and establishment practices. This umbrella program will encompass measures for three BLS programs:

- The Occupational Compensation Survey (OCS), which described the level and distribution of pay for selected work levels of white- and blue-collar occupations nationwide and in a variety of local labor markets;
- The Employment Cost Index (ECI), a principal economic indicator, which provides a quarterly measure of the change in employer costs for employee compensation and employer costs-per-hour worked for each of the components of compensation—wages, salaries, and employee benefits; and
- The Employee Benefits Survey (EBS), which is an annual study of the incidence and detailed charac-

A new BLS compensation survey will integrate three of the Bureau's current surveys to provide data on occupational earnings, employer costs for employee compensation, and details of employer-provided benefits. The new umbrella survey will provide both national and local data.

teristics of employer-provided benefits, such as time-off, insurance, and retirement.

These programs were developed at different times to meet different needs. They have many overlapping data elements that result in duplication of data collection and processing. NCS is designed to eliminate this duplication, develop more efficient collection and processing techniques, and improve the quality of published data.<sup>1</sup>

## Sample design

NCS covers workers in private industry establishments and State and local governments in the 50 States and the District of Columbia. Federal Government, agriculture, and private households are excluded from coverage.

From the onset, the integration of the compensation measures was designed to be implemented in stages. Initial NCS work focused on compiling only wage data by occupation. The six pilot NCS surveys of straight-time earnings covered establishments with one worker or more, regardless of industry.<sup>2</sup> However, because of resource constraints, the first few years of NCS surveys were limited to establishments with 50 or more employees. Eventually the survey will again cover establishments with one worker or more.

Stage 1, the collection of wage data from 24,000 establishments with 50 or more workers, will be completed in the summer of 1998. Ultimately, the sample design calls for a sample of 36,000 establishments—two-thirds of which will be limited to wages, while the remaining one-third will provide data on both wages and benefits. The proposed fully integrated sample is shown on the following page:

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Establishment size	Number of establishments	
	Stage 1	Fully integrated
Under 50 employees .....	0	8,000
Wage only .....	0	2,000
Wage and benefits .....	0	6,000
50 or more employees .....	24,000	28,000
Wage only .....	24,000	22,000
Wage and benefits .....	0	6,000
Total .....	24,000	36,000
Wage only .....	24,000	24,000
Wage and benefits .....	0	12,000

The NCS sample will be split into five approximately equal replacement groups. Each group will be nationally representative and will be replaced every 5 years. The groups are based on a cross-industry, cross-area sample.

The sample will also be divided into four equal collection panels, each of which will correspond to a calendar quarter (13 weeks). Each panel will have its own data collection schedule for initiation and updating. Panels used for the collection of wage-only data will have a 13-week initiation period. Updating of wage-only data will vary by the size of the area. In small areas, all units will be in a single panel that is collected over a 13-week period; in large areas, the units will be divided into four panels, each of which has a 13-week update schedule. In contrast, panels used for collection of wage and benefit data for the ECI will have a 6-month initiation period and will be updated quarterly.

**Area-based samples.** Among the changes already implemented is the shift from a nationwide, industry-based sample to an area-based sample. The area-based sample of establishments is selected in two phases. In the first phase, the United States is divided into primary sampling units (PSU's). In most States, a PSU consists of a county or a number of contiguous counties. Thirty-three PSU's are areas that are always included; others are selected based on probability proportionate to the area's employment. That is, larger areas, in terms of total employment, have a greater chance of selection than smaller areas.

In the second phase, a sample of business establishments and State and local government operations are chosen within each selected area. The individual business establishments and government operations to be studied are also selected using a probability proportionate-to-size technique within each industry sampled. That is, larger establishments, in terms of total employment, have a greater chance of selection than smaller establishments.

Establishments are classified by industry as defined by the *Standard Industrial Classification (SIC) Manual, 1987* prepared by the U.S. Office of Management and Budget. Work is underway throughout all Federal statistical agencies to replace the *SIC* with the North American Industry Classification System (NAICS). The NAICS scheme will

be used by NCS when it becomes available, probably beginning in 2001.

**Integrating the ECI into the NCS.** The ECI replenishment groups that were initiated in 1997 were drawn from NCS area-based, cross-industry samples. These samples differed from previous ECI samples that were drawn nationwide by industry.

**Selection of occupations.** Occupations within an establishment are selected using a sampling technique called probability selection of occupations. This technique calls for the selection of a fixed number of occupations in each establishment using a process that gives occupations with greater employment a greater chance of selection. This probability selection technique results in data for jobs in proportion to their prevalence in the survey area.

Probability selection obtains a statistically representative sample of occupations nationally and for individual survey areas. The resulting data are weighted to represent all workers without bias. Through this technique, jobs that are prevalent in an establishment are more likely to be the ones chosen to be studied. Moreover, this method allows for the possibility of publishing data for any job group. In comparison, the OCS series was limited to jobs on a preset list.

Each selected occupation is classified into 1 of approximately 450 occupation codes that are part of the Census Occupational Classification System, a hierarchical classification system with a number of groups that are broader than a single occupation. Under this system, occupations are divided into major occupational groups (MOG's) and in some cases sub-MOG's. Within each MOG, jobs are classified according to general characteristics such as professional specialty, or technical or service occupation. The sub-MOG is a level finer than the MOG, but still broader than occupation. Examples of sub-MOG's include natural scientists, information clerks, and food service occupations.

During the initial phase of NCS, the Bureau is using the Census Occupation Classification System to maintain consistency with the current ECI. However, work is currently being conducted to revise the Standard Occupational Classification (SOC) system and to require its use for all Federal statistical programs. NCS will switch to the SOC when the revision work is completed and the new system is ready for implementation, probably beginning in 2001.

### Generic leveling

Generic leveling is a process used to determine the work level of an occupation. Each selected occupation is classified into one of several work levels based on duties and responsibilities. The process is generic because it is designed to determine the work level of nearly all occupations found in the economy. The work level of the occupation is determined using nine factors, each of which is broken down into a number of levels.<sup>3</sup> Each of the levels has a

written description and a fixed number of points. The total points from all generic leveling factors determines the employee's work level. The nine factors are: Knowledge, supervision received, guidelines, complexity, scope and effect, personal contacts, purpose of contacts, physical demands, and work environment. A tenth factor, supervisory duties, is being tested, but is not currently used to determine work levels.

### **Benefits—the next stage**

With the completion of the first stage of NCS (implementing a successful area-based wage survey), the process has begun to integrate the collection and processing of micro data to estimate benefit costs and employee participation rates, and to describe detailed benefit provisions.

Features of the plan for incorporating benefits data as part of the NCS call for:

- Quarterly benefit cost changes;
- Annual benefit cost levels;
- An annual, national study of benefit plan incidence and key plan provisions;
- A study of detailed plan provisions, topic-by-topic on a rotating basis (for example, health care and life insurance will be studied one year; retirement plans, disability protection, and paid leave plans will be studied in another year);
- The ability to link and cross analyze benefit costs with incidence and plan provisions;
- The capacity for quick response surveys of employee compensation and establishment practices; and
- Special studies of establishment practices and benefits.

The benefits program will continue to develop over the next few years culminating with the publication of wage and benefit data from a fully integrated national sample in 2001.

### **New products**

Changes are immediately apparent in comparing the NCS outputs with the old OCS outputs: Earnings data, no longer limited to the OCS pre-set job list, are compiled for a larger variety of occupations that are more representative of the economy as a whole and information is obtained on additional variables such as whether the establishment is for profit or non-profit.

A national bulletin using the NCS sample, slated for the

first quarter of 1999, will provide national occupational earnings based on data compiled for the local area bulletins. This new national bulletin will include data on new variables, and will be organized differently than previous OCS national summaries. Specifically, tables will be dispersed within chapters dealing with key occupation and establishment characteristic variables and additional tables will be available on the BLS World Wide Web site.

BLS is also investigating the introduction of two new products—a wage estimator and interarea wage and compensation cost indexes.

The wage estimator application would enable users to obtain estimates of wages and the dispersions of wages for jobs with chosen generic leveling factors. Using the Internet, the user would choose the occupational group of a job, the local area where the job is located and the generic leveling factors of the job. The application would report the mean wage and a measure of the dispersion of wages associated with that job.

The wage estimator would provide published estimates of mean wage rates (when available) or wage rates based on a set of equations (regression formulas) that predict wages based on NCS micro data. The equations specify linear relationships between the natural log of wages and explanatory variables that represent generic leveling factors, occupations, and local areas. Work on developing these equations is underway.

Interarea wage and compensation cost indexes are also under development. These measures would allow a comparison of the overall wage and compensation cost levels for local areas for a fixed market basket of labor services.<sup>4</sup> For example, it would be possible to state that, holding the composition of labor constant, the overall level of wages in New York is x percent higher than in Washington. The indexes would be conceptually similar to the ECI, except that the ECI permits comparisons of costs over time, while the interarea indexes would permit comparisons over time and areas.<sup>5</sup>

### **The future of NCS**

What will the fully implemented NCS survey look like in 2001? NCS will be a single compensation survey using a single sample design to collect data for ECI, EBS, and locality wages. Some of the changes needed to meet this goal are already underway while others are in the planning stage. In the end expected major program enhancements will include: 1) ECI and EBS surveys based on a geographic, area-based sample; 2) local, regional, and national wage estimates based on a random within-establishment occupational selection rather than a fixed national job list, and a streamlined, generic leveling methodology for determining job content; 3) new measures (such as the wage estimator and interarea wage and compensation indexes); and 4) linkage of benefit incidence and provisions to benefit costs.

<sup>1</sup> Several articles appearing in previous issues of *Compensation and Working Conditions* have described various aspects of the National Compensation Survey. See John E. Buckley, "BLS Redesigns Its Compensation Surveys," September 1996, pp. 19-21; Beth Levin Crimmel, "COMP2000: Designing a New Wage Survey," December 1996, pp. 9-11; Kenneth J. Hoffmann, "New Sample Areas Selected for BLS National Compensation Survey Program," Spring 1997, pp. 27-31; Jason Ford, "Earnings by Level of Work: Results from Pilot Studies of the National Compensation Survey Program," Summer 1997, pp. 24-31; and Hilery Simpson, "Tips and Excluded Workers: The New Orleans Test," Summer 1997, pp. 32-36.

<sup>2</sup> The Employment Cost Index, which will be integrated into the NCS, covers establishments with one or more workers.

<sup>3</sup> Since the nine factors are also used in the Factor Evaluation System to grade Federal General Schedule (GS) workers, this information can also be

used to derive grade level equivalents for Federal workers.

<sup>4</sup> For a more detailed discussion including some experimental measures, see "Interarea Comparisons of Compensation and Prices," *Report on the American Workforce*, U.S. Department of Labor, 1997, pp. 69-97.

<sup>5</sup> The interarea indexes are calculated differently than the ECI. In a first step, wage regressions are estimated on NCS micro data in a similar fashion to those estimated for the wage estimator. Separate equations are estimated for groups of labor defined by occupation and industry. Coefficients from the regressions are aggregated to the level of local areas using the Tornqvist index formula and current compensation cost (or wage) weights. The indexes are then made multilaterally consistent through minimal adjustment. This means that if  $x$ ,  $y$ , and  $z$  are the indexes for three cities relative to a national base and if the ratio of two of these is the relative wage between two cities, then minimal adjustment guarantees that  $x/z = (x/y)(y/z)$ .