SUPPORTING STATEMENT FOR

THE NATIONAL COMPENSATION SURVEY

OMB CONTROL NO. 1220-0164

This clearance request is classified as a revision. The sample size of the NCS is being increased due to collection non-response rates experienced during the pandemic. Item 12 has been updated to reflect the new burden estimates and a detailed list of changes is provided in item 15 below and in Part B.

**Overview**

This request is for the approval of pay and benefit collection for the National Compensation Survey (NCS) 1220-0164. Under the NCS, the Bureau of Labor Statistics (BLS) conducts ongoing surveys of compensation and job characteristics. Data collected by the NCS is used to produce Employment Cost Trends, including the Employment Cost Index (ECI), the Employer Costs for Employee Compensation (ECEC), the Employee Benefits Survey (EBS), and data used by the President's Pay Agent.

For the President’s Pay Agent, the BLS uses data from two current BLS programs: the Occupational Employment Statistics (OES) survey and the ECI program. This approach uses OES data to provide wage data by occupation and by area, while ECI data are used to specify grade level effects.

The NCS is a national design survey. The private industry sample is on a three-year rotational cycle. When a new NCS State and local government sample is fielded, the private sample is frozen instead of rotated. This happens approximately every 10 years and is estimated to occur again in 2025.

The NCS uses a factor evaluation method with four factors to evaluate the work level of jobs.

The four-factor leveling method is the result of an earlier joint effort between BLS and the Office of Personnel Management (OPM) undertaken at the request of the President’s Pay Agent. This simplified approach produces more consistent work level occupational matching. Each factor has several levels reflecting increasing duties and responsibilities, and there are point values associated with each level. The four factors are:

* Knowledge – the amount of knowledge required for the job
* Job Controls and Complexity – the type of direction received and the nature of the job
* Contacts – the nature and purpose of contacts within a job but outside the supervisory chain
* Physical Environment – risks involved and physical demands

The NCS collects data on both wage and employee benefits for selected jobs at all sampled establishments. These data include the incidence, costs, and provisions of the employer-provided benefits. For all of these establishments, the BLS updates the wage and benefit cost data quarterly. This updating allows for the publication of change in the cost of wages, benefits, and total compensation on a quarterly basis.

“Field economist” is the BLS title for staff who collect data from respondents. To collect the NCS data, field economists interview respondents who represent the companies, organizations, and government units within the sample. Field economists conduct these interviews in person, by telephone, by email, or through a combination thereof. Other communication media, such as faxes, websites, and mail are used to assist the process, depending on the wishes of the respondents.

Note: In response to the coronavirus pandemic, BLS has discontinued in-person data collection. NCS will return to using in-person interviews as a method of collection once restrictions are lifted. During this time, the NCS is relying heavily on telephone, email, and mail for current collection. Video interview collection is also available in response to the pandemic and is being considered as a standard collection method.

Field economists do not rely on a scripted interview. Instead, they ask probing questions to get the information and might ask questions in different ways. Some respondents will be experts in the field of compensation, while other respondents merely maintain pay and benefit records. Because of the different levels of respondent knowledge, combined with the scope and complexity of NCS data collection, scripting an interview that covers most situations would be very difficult.

In the initial collection, the respondent does not complete the collection forms. The field economist asks for the information and uses the collection forms as a note-taking device. This information is entered into the NCS collection system computer database after the completion of the interview. Respondents normally give a copy of a recent establishment payroll, and those payroll data are either electronically reformatted or hand-entered into the NCS collection system by the field economist. Benefit cost data may be included on a payroll run, given verbally, or provided by a copy of a billing statement. NCS policy is to collect the data in whichever form is easiest for the respondents to provide and then reformat those data for use. This approach could cause some non-sampling error, but ongoing collection training and quality assurance programs are in place to lessen any impact on data collection.

When updating the wage and benefit data, the respondent may choose to send the data on forms that the BLS provides. Many respondents will send copies of a recent payroll, benefit cost run, or billing statement for various benefits (mostly insurance) in place of using the forms. The respondents may respond through e-mail, fax, mail, telephone, or a secure BLS website. The NCS allows respondents, using Secure Sockets Layer (SSL) encryption and the establishment’s schedule number, to upload data file(s) to a secure BLS server that forwards those files to the assigned field economist. Respondent access to these web pages is through the existing NCS Internet Data Collection Facility (IDCF) system.

Respondents who wish to provide the information by telephone can call in the information or wait to be called. In such cases, the field economists record the information provided. All updated wage and benefit data are entered by field economists into the NCS collection system computer database.

The published compensation data include the following information:

* Employer cost of total compensation
* Employer cost of wages and salaries
* Employer cost of benefits
* Employee cost of selected benefits
* Percent of employees participating in benefit plans
* Provisions of benefit plans
* Percent change in total compensation costs
* Percent change in wages and salaries
* Percent change in selected benefits

The types of benefit information collected include:

* Health, life, and disability insurances
* Retirement plans
* Leave information
* Legally required benefits (Social Security, Medicare, workers’ compensation, and unemployment insurance)
* Overtime, shift, and bonus pay

As compensation practices change, so too must the NCS. This is accomplished through constant environmental scanning, which, after testing, can result in survey changes when new benefits, provisions, or practices are identified. In June and July of 2020, information on changes to sick leave in response to the Coronavirus pandemic was collected per an emergency request under OMB number 1220-0195. There are no plans to continue collection of these special questions beyond those dates.

Some benefits (called “Other benefits” in NCS) data are collected to track the emergence of new or changing benefits over time. Examples of benefits collected are long-term care insurance and flexible workplace. The BLS only asks whether sampled occupations receive these benefits and periodically modifies this list.

For this request, there are no changes to NCS data collection elements.

Data currently captured by NCS staff includes information on details of benefit services received by employees and their families as well as restrictions and limits on the receipts of these services. Most of this provision detail is coded from descriptions in summary plan documents provided by establishments, not through the interview.

Examples of current provision details in NCS include the following:

* Managed care in health insurance
* Cost sharing arrangements such as typical deductibles and copayments
* Other health plan information such as coverage for hospitalization, alternatives to hospitalization, mental health, substance abuse treatment, surgical care, and physicians visits
* Dental, vision, and prescription drug benefits
* Levels of coverage for life insurance and disability plans
* Pension plan eligibility, benefit formulas, survivor options, and disability provisions
* Defined contribution retirement plans: employee and employer contribution rates, investment choices, tax status of employee contributions, and disbursement options
* Number of vacation days, sick days, and holidays

NCS also produces wage estimates using a statistical procedure that combines survey data collected by the NCS and the Occupational Employment Statistics (OES) programs. These Modeled Wage Estimates (MWE) provide annual estimates of average hourly wages for occupations by selected job characteristics and within geographical locations. The job characteristics include bargaining status (union and nonunion), part- and full-time work status, incentive- and time-based pay, and work levels by occupation.

# JUSTIFICATION

## 1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

Data on various forms of compensation, including employers’ costs for wages and benefits, benefits incidence, and detailed characteristics of benefit plan provisions, are needed to meet the requirements of a number of Federal programs. Leveling data produced from the survey are used to determine locality pay and general increases for most Federal workers. Total compensation data are needed for the calculation of the ECI, a principal Federal economic indicator used in determining monetary policy. The ECI ensures the accuracy of the statistics on employers' compensation costs that we rely on for economic policy making and for successful business planning.

The Centers for Medicare and Medicaid Services uses the ECI to determine allowable increases in Medicare reimbursements for hospital and physician charges. The Wage and Hour Division of DOL uses the ECI to set benefit costs required by the Service Contract Act. Other uses of ECI data include macro-economic forecasting; collective bargaining and other pay determinations; estimating compensation in the National Income and Product Accounts done by the Bureau of Economic Analysis; contract cost escalation; and studies on the structure of employee compensation.

ECI estimates are widely used by the private sector to determine the costs of pay and benefits, for research in the field of labor economics, and in private contracts for wage escalation. The ECI provides quarterly and annual change in total compensation costs, including changes in wage and salary costs and changes in the cost of employer-provided benefits. Data from the NCS are used for a variety of reasons by the private sector including to aid in collective bargaining negotiations, evaluate benefit packages, analyze contract settlements, and for compensation administration.

The collection of employee compensation data is authorized and mandated by several laws and regulations. Links to the appropriate sections of these laws, regulations, or documents are attached. These include:

1. The Bureau of Labor Statistics “…is authorized and directed to make continuing studies of... labor costs in the manufacturing, mining, transportation, distribution, and other industries” under Title 29 of the U.S. Code, ([29 USC 2b](https://uscode.house.gov/view.xhtml?req=(title:29%20section:2b%20edition:prelim))).
2. The ECI is designated a Principal Federal Economic Indicator under OMB Statistical Policy Directive No. 3. 2015.

Release dates posted: <http://www.bls.gov/schedule/news_release/eci.htm>>

1. Annual adjustments to the basic rates of pay for members of Congress ([2 USC §4501](https://uscode.house.gov/view.xhtml?req=ECI&f=treesort&fq=true&num=0&hl=true&edition=prelim&granuleId=USC-prelim-title2-section4501)), the Vice President ([3 USC §104](https://uscode.house.gov/view.xhtml?req=ECI&f=treesort&fq=true&num=1&hl=true&edition=prelim&granuleId=USC-prelim-title3-section104)), Federal statutory pay schedules ([5 USC §5303](https://uscode.house.gov/view.xhtml?req=ECI&f=treesort&fq=true&num=3&hl=true&edition=prelim&granuleId=USC-prelim-title5-section5303)), Senior Executives ([5 USC §5318](https://uscode.house.gov/view.xhtml?req=ECI&f=treesort&fq=true&num=4&hl=true&edition=prelim&granuleId=USC-prelim-title5-section5318)), Judiciary staff ([28 USC §461](https://uscode.house.gov/view.xhtml?req=ECI&f=treesort&fq=true&num=5&hl=true&edition=prelim&granuleId=USC-prelim-title28-section461)), and members of the Uniformed Services ([37 USC §1009](https://uscode.house.gov/view.xhtml?req=(title:37%20section:1009%20edition:prelim))).
2. The Federal Employees Pay Comparability Act of 1990 directs the President’s Pay Agent to prepare “... a report that -- (A) compares rates of pay under the General Schedule with the rates of pay generally paid to non-Federal workers for the same levels of work within each pay locality, as determined on the basis of appropriate surveys that shall be conducted by the Bureau of Labor Statistics,” ([5 USC 5304](https://uscode.house.gov/view.xhtml?req=(title:5%20section:5304%20edition:prelim)%20)).
3. Annual adjustments to: funding for the Bureau of Consumer Financial Protection ([12 USC § 5497](https://uscode.house.gov/view.xhtml?req=(title:12%20section:5497%20edition:prelim))); defense contract allowable costs of compensation for contractor employees ([10 USC §2324](https://uscode.house.gov/view.xhtml?req=(title:10%20section:2324%20edition:prelim))); public contract allowable costs of compensation for contractor employees ([41 USC §4304](https://uscode.house.gov/view.xhtml?req=(title:41%20section:4304%20edition:prelim))); and special payments for highly qualified experts ([5 USC §9903](https://uscode.house.gov/view.xhtml?req=%22employment+cost+index%22&f=treesort&fq=true&num=5&hl=true&edition=prelim&granuleId=USC-prelim-title5-section9903)).

## 2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

A prominent use of the current NCS data is to determine changes in Federal workers’ pay, as mandated in the FEPCA of 1990.

Other important data users include:

* Private firms that use the data in the administration and evaluation of the compensation packages they offer their workers
* Researchers in academia and consulting

The BLS continually examines compensation literature and maintains personal contact with relevant associations and researchers. Currently, no other information is available on a probability basis that yields the scope of compensation data found in the NCS surveys.

One of the chief products of the NCS is the ECI. The data produced by the ECI are the only source for measures of change in compensation in the broad civilian, non-Federal, and non-farm economy. Other surveys of change in compensation produce data that are valuable for specific purposes, but are limited in scope and coverage.

Another NCS product is the estimation of benefit incidence and detailed provisions. The NCS benefits are the only source of comprehensive data on employer-provided benefits that are based on a statistical sample and cover the broader economy. Annually, the NCS produces and publishes two benefit products. The Employee Benefits in the United States news release presents the percentage of workers with access to and participation in employer-provided benefit plans, as well as data on key provisions such as employer and employee shares of medical care premiums. The second publication presents additional information about employer benefit plans, including detailed provisions for Health and Retirement plans based on employer documentation of benefit plans.

There is continuing interest in using NCS data files for special research. Many government, academic, institutional, and private industry researchers are currently using these data, and other such efforts are in the planning stages. Recent requests for special research and tabulations have come from:

* Federal agencies, including the Congressional Budget Office, Bureau of Economic Analysis, Center for Medicare and Medicaid Services, Office of Personnel Management, Pension Benefit Guaranty Corporation, and Council of Economic Advisers.
* State and local government, including the California Department of Transportation and a New Jersey police precinct.
* Academic researchers, including requests on behalf of Hofstra, Massachusetts Institute of Technology (MIT), and Harvard.
* Private industry, including requests from nonprofits, think tanks, a trade association, an advocacy organization, a fact-checking organization, insurance and consulting firms.

The Information requested included ECEC data by work status (full-time and part-time), by bargaining status, and for residential or nonresidential construction workers. Requests for NCS Benefits data included access to paid sick leave benefits by industry and geographic area, as well as retirement benefits for workers in elementary and secondary schools.

## 3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also, describe any consideration of using information technology to reduce burden.

BLS field economists obtain data from respondents through personal interview, telephone, e-mail, fax, and website contacts. After the interview, BLS field economists enter collected data into a database utilizing a customized computer application.

The application is designed for use on both laptop and desktop personal computers, and runs in the Microsoft Windows operating system. Field economists are able to enter information for an establishment and perform a variety of data edits to check the validity of the entries. This data capture system currently has approximately 900 total edits. The NCS program uses an Oracle database for data storage and processing.

The Quarterly Census of Employment and Wages (QCEW) is a relational database of business establishments linked longitudinally and based on the microdata submitted quarterly by States from Unemployment Insurance (UI) tax files. The QCEW serves as a sampling frame for the NCS and other establishment-based surveys. BLS data elements on these QCEW files include information on monthly employment, business name and addresses, industry classification, geo codes, and other administrative data. Every business establishment contains a unique identifier that allows for tracking of individual establishments at the micro level across quarters for the United States. The NCS uploads these data into its computer system before the field economist visits the establishment, thereby reducing the burden on respondents to provide this basic information.

To reduce reporting burden, the BLS allows responding establishments to provide an electronic data file, rather than recording data on paper. NCS uses a program that allows for centralized control of data received over the internet that helps facilitate data received electronically. These data can then be directly imported into the NCS system, or the data can be reformatted by the system if needed. While field economists may still visit the establishment during the initiation (first) collection, respondents now can send initiation and updated data via the internet, mail, a secure server, or fax.

The NCS uses a Web-based system (Web-Lite) that allows NCS respondents, using Secure Sockets Layer (SSL) encryption and the establishment’s schedule number, to upload data files to a secure BLS server that forwards those files to the assigned field economist. These interactive Web pages allow respondents to further refine and break out the detailed data they send NCS using this Web application.

The NCS is adding a fillable pdf form to collect updated benefit data. This form allows respondents to enter information directly into a structured form alongside previously reported data.

## 4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item A.2 above.

The NCS data collection supports a number of outputs. In 1999, three compensation surveys were combined into the current NCS. Each establishment is now contacted only one time (in each sample cycle) rather than possibly being contacted for more than one survey in a quarter. Therefore, the burden on respondents has been reduced significantly, especially for those large establishments that are selected in multiple samples.

BLS undertakes efforts to coordinate NCS data collection with other surveys and other Federal data needs. For example, within the BLS, data collection is coordinated between the NCS and the Bureau’s OES program. For large establishments that are selected in both survey’s samples, the NCS program collects the data and it is then used for both surveys.

NCS staff periodically contact the Agency for Healthcare Research and Quality (Medical Expenditure Panel Survey [MEPS] Insurance Component) survey staff to avoid unneeded duplications of benefits collection.

## 5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.

The NCS program is designed to provide compensation data that are representative of the national economy. Therefore, information is collected from establishments of all sizes. Any establishment with at least one employee is a potential respondent (for NCS a small establishment has from one to 99 employees). Private industry establishments are initiated into the survey during a one yearlong collection period and remain in survey estimation for three years. The State and local government establishments’ sample is reselected every ten years.

The aggregate collection burden on small establishments is significantly less than medium and large establishment burden. For all establishments, including small establishments, an optimum allocation design is obtained by sorting establishments within the industry by employment size and sampling the industry with probability proportionate to the amount of employment contained in those industries. Therefore, larger firms have a greater chance of being selected. The BLS also collects data on fewer occupations in small establishments. Furthermore, small establishments will have a smaller benefit collection burden because they tend to offer fewer benefits than larger establishments.[[1]](#footnote-2)

## 6. Describe the consequence to federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

The consequences of not collecting the NCS would cause the loss of data series that:

* Are needed to administer Federal workers’ pay and other programs
* Are valuable tools to private sector compensation administrators
* Provide data critical to analysis of the US economy

If collection were done less frequently, the following negative ramifications could occur:

* Compensation change data, computed on a semiannual or annual basis instead of quarterly, would make it more difficult to identify the causes of any change in the price of labor in a timely manner.
* The change would impair the ability of companies and government entities that use the ECI as a cost escalator for labor rates.

## 7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

* **requiring respondents to report information to the agency more often than quarterly;**
* **requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
* **requiring respondents to submit more than an original and two copies of any document;**
* **requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records for more than three years;**
* **in connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
* **requiring the use of statistical data classification that has not been reviewed and approved by OMB;**
* **that includes a pledge of confidentially that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
* **requiring respondents to submit proprietary trade secret, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentially to the extent permitted by law.**

There are no special circumstances for this collection.

## 8. If applicable, provide a copy and identify the date and page number of publication in the *Federal* *Register* of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.

**Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.**

**Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every 3 years -- even if the collection-of-information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.**

One comment was received on the Federal Register notice published in 85 FR 35667 on June 11, 2020. The Chief Economist at the Bureau of Economic Analysis (BEA) sent a letter of support. The letter listed BEA’s needs and uses for the ECI, the ECEC, and the EBS data.

Outside Consultation

The BLS solicits input from data users, including survey respondents, on the types of compensation statistics they would like to see produced. In November 2019, NCS conducted a stakeholder survey soliciting feedback from NCS data users regarding their use and needs for NCS survey data and products. The BLS also obtains advice on its programs from the Data Users Advisory Committee (DUAC) and the Technical Advisory Committee (TAC) with members from the labor, business, government, research and academic communities and the Federal Economic Statistics Advisory Committee. The latter as (well as TAC) provides members of the academic community the opportunity to have input on statistical issues. This Committee is a joint effort of the Bureau of Economic Analysis, the Census Bureau, and the BLS.

In addition, the BLS attends, speaks, and staffs exhibits to describe and publicize the NCS program and products. Examples include participation at the annual WorldatWork conference, the Society for Human Resources Management conferences, the American Society for Healthcare Human Resources Administration conferences, and the annual Joint Statistical Meetings sponsored by several professional statistical associations including the American Statistical Association. Getting public feedback from the human resource community helps in survey design and publications.

Finally, an important part of the feedback the BLS receives comes from the survey respondents and their reactions to the type of data requested, the accessibility of the data, and the value of the results. Field economists relay information back from respondents to regional managers, who in turn consult with national office managers to assess respondents’ suggestions or concerns and act appropriately.

## 9. Explain any decision to provide any payments or gifts to respondents, other than remuneration of contractors or grantees.

No payments or gifts will be provided to any respondents.

## 10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

The Confidential Information Protection and Statistical Efficiency Act (CIPSEA) safeguards the confidentiality of individually identifiable information acquired under a pledge of confidentiality for exclusively statistical purposes by controlling access to, and uses made of, such information. CIPSEA includes fines and penalties for any knowing and willful disclosure of individually identifiable information by an officer, employee, or agent of the BLS.

Based on this law, the BLS provides all non-government respondents with the following confidentiality pledge/informed consent statement:

*The Bureau of Labor Statistics, its employees, agents, and partner statistical agencies, will use the information you provide for statistical purposes only and will hold the information in confidence to the full extent permitted by law. In accordance with the Confidential Information Protection and Statistical Efficiency Act (44 U.S.C. 3572) and other applicable Federal laws, your responses will not be disclosed in identifiable form without your informed consent. Per the Federal Cybersecurity Enhancement Act of 2015, Federal information systems are protected from malicious activities through cybersecurity screening of transmitted data.*

This statement appears on the private industry collection forms and is on our web collection site.

For the NCS program, the pledge of confidentiality is not extended to State and local government entities, unless specifically requested, since the data they provide are a matter of public record.

BLS policy on the confidential nature of respondent identifiable information (RII) states that “RII acquired or maintained by the BLS for exclusively statistical purposes and under a pledge of confidentiality shall be treated in a manner that ensures the information will be used only for statistical purposes and will be accessible only to authorized individuals with a need-to-know.”

Before NCS estimates are released to the public, they are first screened to ensure that they do not violate the BLS confidentiality pledge. A promise is made to each private industry respondent and those government sector respondents who request confidentiality, that BLS will not release its reported data to the public in a manner which would allow others to identify the establishment, firm, or enterprise.

In some instances, respondents are unable to provide certain data elements needed to complete the collection requirements. The data, however, may be available from a secondary source such as an insurer, union, or accounting firm. When this occurs, it becomes necessary for the BLS to go to a secondary source for the information. In these cases, the BLS requests verbal consent from the establishment to solicit the information from the secondary source (examples: union benefit fund or commercial payroll processing firm).

## 11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

Aside from the sensitivity attached to payroll information, no other sensitive questions are asked during the survey.

## 12. Provide estimates of the hour burden of the collection of information. The statement should:

* **Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. General, estimates should not include burden hours for customary and usual business practices.**
* **If this request for approval covers more than one form, provide separate hour burden estimates for each form.**
* **Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included in Item 14.**

Estimates of respondent burden are provided in this section for all activities associated with the NCS program. For the purposes of the discussion of respondent burden and BLS cost, collection is divided into two categories: initiations and updates. In an initiation, the respondent is contacted for the first time. The BLS field economist samples the jobs at the establishment for study, collects the pay and benefit information, and sets up the updating process. In an update, information is collected on the same jobs that were sampled in initiation. The field economist records any changes to employment characteristics or compensation since the initiation, or since the last update. Thus, updates generally take far less time than initiations.

Broadly stated, both private industry and State/local government establishments in the survey fall into one or more of the three categories below. Each of these categories, with the percentage of establishments expected in each category over the three years, is listed below.

1) Establishments where pay and benefits data are collected and updated quarterly (some of these benefits may only change annually). The BLS collects data on pay and benefit costs every quarter from all establishments.

2) Feasibility testing to determine the best ways to collect compensation. These represent about 10 percent of the estimated establishments in the NCS. Tests are conducted to improve survey procedures and processes, produce data that are more accurate, investigate compensation practices, and to help lower respondent burden. A test to improve electronic data collection processes is an example of the specific tests NCS anticipates will be conducted over the next three years.

3) Follow-up establishment interviews for quality assurance activities on the collected data. The NCS has a formal review policy where approximately 5 percent of all establishments are randomly selected for re-contact.

The following list breaks the activities down into the types of collection.

Activity (1a) – Initiation of establishments in the NCS sample.

Activity (1b) – Updating of establishments in the NCS sample. Data from these establishments are updated quarterly.

Activity (2) – Tests of compensation collection.

Activity (3a) – Re-interview for quality assurance activities of initiations.

Activity (3b) – Re-interview for quality assurance activities of updates.

The BLS estimates quality assurance activities will have a response rate approaching 100 percent.

The BLS estimates that for NCS schedules, an anticipated 4.23 hours (254 minutes) of respondent time will be required for initial collection: 1.23 hours for the completion of the general information and pay component, and 3 hours for the completion of benefits. Five minutes is the estimated respondent time for initiation of establishments that choose not to participate in the NCS. The BLS estimates that updates for the NCS schedules will take 40 minutes for establishments where both pay and benefits are collected. All estimates are based on studies of past collection experience.

The BLS estimates that follow-up re-interview for quality assurance activities will take 15 minutes. Because of the nature of a quality assurance re-interview, the time required is not dependent on the time required for initial collection.

Estimates of respondent burden associated with these collection activities in FY 2021, FY 2022, and FY 2023 are broken out by affected sector (private sector, State and local governments) and provided in Tables 1a through 2c. The Coronavirus pandemic has accelerated declining response rates for both initiation and update collection. The estimates of respondent burden reflect the current response levels for FY 2021 and FY 2022. FY 2023 projects a slight recovery in response levels for quality assurance activities. Response rates for initiation and update activities are not expected to improve in FY 2023.

### Table 1a. Anticipated private sector sample burden by activity type for FY 2021 (annual figures)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 1,774 | 1 | 1,774 | 254 | 7,510 |
| Activity 1a—Initiation of NCS data (non-response) | 1,451 | 1 | 1,451 | 5 | 121 |
| Activity 1b—Updates of NCS data | 9,805 | 3.2 | 31,376 | 40 | 20,917 |
| Activity 2—Feasibility survey testing | 400 | 1 | 400 | 60 | 400 |
| Activity 3a—Re-interview for quality assurance activities of initiations | 89 | 1 | 89 | 15 | 22 |
| Activity 3b—Re-interview for quality assurance activities of updates | 490 | 3.2 | 1,568 | 15 | 392 |
| FY 2021 Totals annually | **14,009** |  | **36,658** | **--** | **29,362** |

### Table 1b. Anticipated private sector sample burden by activity type for FY 2022 (annual figures)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 2,013 | 1 | 2,013 | 254 | 8,522 |
| Activity 1a—Initiation of NCS data (non-response) | 1,647 | 1 | 1,647 | 5 | 137 |
| Activity 1b—Updates of NCS data | 9,805 | 3.2 | 31,376 | 40 | 20,917 |
| Activity 2—Feasibility survey testing | 400 | 1 | 400 | 60 | 400 |
| Activity 3a—Re-interview for quality assurance activities of initiations | 101 | 1 | 101 | 15 | 25 |
| Activity 3b—Re-interview for quality assurance activities of updates | 490 | 3.2 | 1,568 | 15 | 392 |
| FY 2022 Totals annually | 14,456 | -- | 37,105 | -- | 30,393 |

### Table 1c. Anticipated private sector sample burden by activity type for FY 2023 (annual figures)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 2,699 | 1 | 2,699 | 254 | 11,426 |
| Activity 1a—Initiation of NCS data (non-response) | 2,209 | 1 | 2,209 | 5 | 184 |
| Activity 1b—Updates of NCS data | 11,305 | 3.2 | 36,176 | 40 | 24,117 |
| Activity 2—Feasibility survey testing | 400 | 1 | 400 | 60 | 400 |
| Activity 3a—Re-interview for quality assurance activities of initiations | 135 | 1 | 135 | 15 | 34 |
| Activity 3b—Re-interview for quality assurance activities of updates | 565 | 3.8 | 2,147 | 15 | 537 |
| FY 2023 Totals annually | 17,313 | -- | 43,766 | -- | 36,698 |

### Table 2a. Anticipated State and local government sample burden by activity type for FY 2021 (annual figures) which carries forward from previous sample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents  Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 0 | 0 | 0 | 0 | 0 |
| Activity 1b—Updates of NCS data | 1,596 | 3.6 | 5,746 | 40 | 3,831 |
| Activity 2—Feasibility survey testing | 60 | 1 | 60 | 60 | 60 |
| Activity 3a—Re-interview for quality assurance activities of initiations | 0 | 0 | 0 | 0 | 0 |
| Activity 3b—Re-interview for quality assurance activities of updates | 80 | 3.6 | 288 | 15 | 72 |
| FY 2021 Totals annually | 1,736 | -- | 6,094 | -- | 3,963 |

### Table 2b. Anticipated State and local government sample burden by activity type for FY 2022 (annual figures) which carries forward from previous sample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents  Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 0 | 0 | 0 | 0 | 0 |
| Activity 1b—Updates of NCS data | 1,596 | 3.6 | 5,746 | 40 | 3,831 |
| Activity 2—Feasibility survey testing | 60 | 1 | 60 | 60 | 60 |
| Activity 3a—Re-interview for quality assurance activities of initiations | 0 | 0 | 0 | 0 | 0 |
| Activity 3b—Re-interview for quality assurance activities of updates | 80 | 3.6 | 288 | 15 | 72 |
| FY 2022 Totals annually | 1,736 | -- | 6,094 | -- | 3,963 |

### Table 2c. Anticipated State and local government sample burden by activity type for FY 2023 (annual figures) which carries forward from previous sample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents  Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | -- | 0 | -- | 0 | -- |
| Activity 1b—Updates of NCS data | 1,596 | 3.6 | 5,746 | 40 | 3,831 |
| Activity 2—Feasibility survey testing | 60 | 1 | 60 | 60 | 60 |
| Activity 3a—Re-interview for quality assurance activities of initiations | -- | 0 | -- | 0 | -- |
| Activity 3b—Re-interview for quality assurance activities of updates | 80 | 3.6 | 288 | 15 | 72 |
| FY 2023 Totals annually | 1,736 | -- | 6,094 | -- | 3,963 |

The table below summarizes the data, including figures on the actual number of respondents to be contacted each year.

### Table 3: Anticipated private sector average responses and burden by Fiscal Year

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | Respondents | Average responses per year | Total # of  Responses | Average minutes per response | Total hours |
| FY 2021 | 14,009 | 2.6167 | 36,658 | 48.0583 | 29,362 |
| FY 2022 | 14,456 | 2.5668 | 37,105 | 49.1465 | 30,393 |
| FY 2023 | 17,313 | 2.5279 | 43,766 | 50.3103 | 36,698 |
| Overall  Average | 15,259 | 2.5674 | 39,176 | 49.2404 | 32,151 |

Private sector averages include both initiation, update of establishment data, and quality assurance contacts.

### Table 4: Anticipated State and local government average responses and burden by Fiscal Year

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | Respondents | Average responses per year | Total # of  Responses | Average minutes per response | Total hours |
| FY 2021 | 1,736 | 3.5104 | 6,094 | 39.0187 | 3,963 |
| FY 2022 | 1,736 | 3.5104 | 6,094 | 39.0187 | 3,963 |
| FY 2023 | 1,736 | 3.5104 | 6,094 | 39.0187 | 3,963 |
| Overall  Average | 1,736 | 3.5104 | 6,094 | 39.0187 | 3,963 |

State and local government averages include both initiation, update of establishment data, and quality assurance contacts.

Estimates of respondent burden by type of collection activity in FY 2021, FY 2022, and FY 2023 follow.

### Table 5. Anticipated burden by activity type in FY 2021 – October 2020 to September 2021

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents  Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 1,774 | 1 | 1,774 | 254 | 7,510 |
| Activity 1a—Initiation of NCS data (non-response) | 1,451 | 1 | 1,451 | 5 | 121 |
| Activity 1b—Updates of NCS data | 11,401 | 3.2560 | 37,122 | 40 | 24,748 |
| Activity 2—Feasibility survey testing | 460 | 1 | 460 | 60 | 460 |
| Activity 3a— Re-interview for quality assurance activities of initiations | 89 | 1 | 89 | 15 | 22 |
| Activity 3b— Re-interview for quality assurance activities of updates | 570 | 3.2561 | 1,856 | 15 | 464 |
| FY 2021 Total | 15,745 | -- | 42,752 | -- | 33,325 |

### Table 6. Anticipated burden by activity type in FY 2022 – October 2021 to September 2022

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents  Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 2,013 | 1 | 2,013 | 254 | 8,522 |
| Activity 1a—Initiation of NCS data (non-response) | 1,647 | 1 | 1,647 | 5 | 137 |
| Activity 1b—Updates of NCS data | 11,401 | 3.2560 | 37,122 | 40 | 24,748 |
| Activity 2—Feasibility survey testing | 460 | 1 | 460 | 60 | 460 |
| Activity 3a— Re-interview for quality assurance activities of initiations | 101 | 1 | 101 | 15 | 25 |
| Activity 3b— Re-interview for quality assurance activities of updates | 570 | 3.2561 | 1,856 | 15 | 464 |
| FY 2022 Total | 16,192 | -- | 43,199 | -- | 34,356 |

### Table 7. Anticipated burden by activity type in FY 2023 – October 2022 to September 2023

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Collection Activity | Number of Respondents  Per Activity (Net) | Responses  Per  Respondent | Total  Annual  Responses by Activity | Minutes Per  Response | Total  Hours |
| Activity 1a—Initiation of NCS data | 2,699 | 1 | 2,699 | 254 | 11,426 |
| Activity 1a—Initiation of NCS data (non-response) | 2,209 | 1 | 2,209 | 5 | 184 |
| Activity 1b—Updates of NCS data | 12,901 | 3.24952 | 41,922 | 40 | 27,948 |
| Activity 2—Feasibility survey testing | 460 | 1 | 460 | 60 | 460 |
| Activity 3a— Re-interview for quality assurance activities of initiations | 135 | 1 | 135 | 15 | 34 |
| Activity 3b— Re-interview for quality assurance activities of updates | 645 | 3.77519 | 2,435 | 15 | 609 |
| FY 2023 Total | 19,049 | -- | 49,860 | -- | 40,661 |

The table below summarizes the data, including figures on the actual number of respondents to be contacted each year.

### Table 8: Anticipated average responses and burden by Fiscal Year

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | Respondents | Average responses per year | Total # of  Responses | Average minutes | Total hours |
| FY 2021 | 15,745 | 2.7153 | 42,752 | 46.7697 | 33,325 |
| FY 2022 | 16,192 | 2.6679 | 43,199 | 47.7178 | 34,356 |
| FY 2023 | 19,049 | 2.6175 | 49,860 | 48.9302 | 40,661 |
| Overall  Average | 16,995 | 2.6637 | 45,270 | 47.8645 | 36,114 |

Overview of NCS collection forms/screens

The NCS has various forms/screens for data collection as different activities during data collection call for unique forms. Both private industry and government versions exist for many form/screen types. Copies of these forms are included in this clearance package.

The initiation forms are primarily used as note-taking devices by the field economists (BLS staff). The field economists ask probing questions that will vary depending on the knowledge level of the respondent. The forms provide the field economist with a list of the required information needed for the survey, not a list of questions. For quality assurance re-interviews, the field economists will ask for specific items of data in a prescribed manner from data stored in the electronic database. For update collection, NCS tailors the forms sent to match the data previously collected and respondent preferences. NCS considers the establishment data in the electronic database the official copy of the establishment data for survey purposes.

### Table 9. Functions and uses of NCS forms

|  |  |  |  |
| --- | --- | --- | --- |
| **Information collected** | **Purpose/Activity** | **Forms** | **Time** |
| Government General Establishment Information, work level and schedule; records check of these data | Initiation general information (1a); | Establishment collection, work level and schedule form  NCS Form20-1G (2020) | 54 minutes |
| Private Industry General Establishment Information, work level and schedule; records check of these data | Initiation general information (1a); | Establishment collection, work level and schedule form  NCS Form20-1P (2020) | 54 minutes |
| Government Earnings data; records check of earnings data | Wage initiation (1a) | Earnings form  NCS Form 20-2G (2020) | 20 minutes |
| Private Industry Earnings data; records check of earnings data | Wage initiation (1a) | Earnings form  NCS Form 20-2P (2020) | 20 minutes |
| Government Updating earnings data; records check of earnings data | Wage update (1b) | Wage Shuttle form  (computer generated earnings update form )  NCS Form20-9G (2020)  IDCF E-Update Entry Form | 20 minutes |
| Private Industry Updating earnings data; records check of earnings data | Wage update (1b) | Wage Shuttle form  (computer generated earnings update form )  NCS Form20-9P (2020)  IDCF E-Update Entry Form | 20 minutes |
| Government Collection of benefits for new government units; records check of this collection | Benefit initiation (1a) | Benefits Collection Form  NCS Form 20-5G (2020) | 180 minutes |
| Private Industry Collection of benefits for new units; records check of this collection | Benefit initiation (1a) | Benefits Collection Form  NCS Form 20-5P (2020) | 180 minutes |
| Government Update of benefits data for all establishments; records check of this collection | Benefit update (1b) | Summary of Benefits  (Benefit update form SO-1003G)  IDCF E-Update Entry Form  Benefits Fillable  (Benefit update form SO100BF-1GP) | 20 minutes |
| Private Industry Update of benefits data for all establishments; records check of this collection | Benefit update (1b) | Summary of Benefits  (Benefit update form SO-1003P)  IDCF E-Update Entry Form  Benefits Fillable  (Benefit update form SO100BF-1GP) | 20 minutes |
| Entry screens for SSL Website | File upload screens for wage and benefit update (1b) | IDCF/BLSCompdata Web-Lite Authentication | 4 minutes |

Based on past experience, 70 percent of reporting time comes from professional and related workers, and the remaining 30 percent comes from office and administrative support workers. Tables 10a and 10b below summarize the number of respondents to be contacted each year and estimates of Total Burden Costs.

### Table 10a. Estimated respondent cost and distribution

|  |  |  |
| --- | --- | --- |
| **Type of Respondents** | **Average Hourly Rate** | **Historical Respondent Percentage** |
| Professional and related specialty | $57.48 | 70 |
| Office and administrative support | $28.23 | 30 |
| Weighted Average Hourly Wage Rate | $48.71 |  |

Hourly costs of pay and benefits measured by the ECEC data series for Civilian workers in December, 2019. <http://www.bls.gov/news.release/pdf/ecec.pdf>

### Table 10b. Anticipated total sample average responses and burden by Fiscal Year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Fiscal Year** | **Respondents** | **Total # of responses\*** | **Average minutes per response** | **Total hours** | **Average Hourly Wage Rate** | **Total Burden Costs** |
| FY 2021 | 15,745 | 42,752 | 46.7697 | 33,325 | $48.71 | $1,623,261 |
| FY 2022 | 16,192 | 43,199 | 47.7178 | 34,356 | $48.71 | $1,673,481 |
| FY 2023 | 19,049 | 49,860 | 48.9302 | 40,661 | $48.71 | $1,980,597 |
| Total Average | 16,995 | 45,270 | 47.8645 | 36,114 | $48.71 | $1,759,133 |
| \*Initiations, quarterly updates, quality assurance contacts, and collection testing Note: The sum of individual items may not equal totals due to rounding. | | | | | | |

## 13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14).

* **The cost estimate should be split into two components: (a) a total capital and start up cost component (annualized over its expected useful life); and (b) a total operation and maintenance and purchase of service component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.**
* **If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.**
* **Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.**

The only costs involve the respondent’s time. There are no capital and start-up costs, operation and maintenance, or purchase of service costs resulting from the collection of this information.

## 14. Provide estimates of the annualized cost to the Federal Government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), any other expense that would not have been incurred without this collection of information. Agencies also may aggregate cost estimates from Items 12, 13, and 14 into a single table.

The estimated cost of the survey is $58 million for FY 2020. NCS collection cost is $26 million and non-collection cost is $32 million.

## 15. Explain the reasons for any program changes or adjustments.

BLS is seeking approval to increase the NCS sample size for Fiscal Years 2022 and 2023 to mitigate against the impacts of pandemic related non-response on survey estimates. The recent extension of 1220-0164, was approved on May 28, 2021, with average total burden hours of 35,560. This was a decrease in average total burden hours from the prior collection approval of 44,222 hours and primarily due to an estimated decrease in responses based on recent trends. There was no change to the planned initiation sample size. To ensure a sufficient number of units are collected to calculate the ECI, BLS is now seeking approval to increase the NCS sample size for Fiscal Years 2022 and 2023, bringing the average total burden hours to 36,114.

Under the NCS cycle design, the private industry cycle has greater initiation burden hours when aircraft manufacturing and large firms with a sample weight of 1 enter the survey. This will happen in the 3rd year of this three-year OMB Clearance. The 2nd year of this clearance initially reflected a higher private industry burden than the original sample design as well. This was due to retaining a sample group for an additional year to mitigate the impacts of pandemic related non-response, as described in Supporting Statement Part B. During Fiscal Year 2021, BLS removed long-term non-responding units from the update sample to reduce contacts and align burden with the original design. If data collection response does not improve, BLS will again rotate out only the oldest sample group after the September 2022 quarter. The sample group regularly scheduled to rotate out will be retained for an additional year to ensure a sufficient number of units are collected for the ECI.

## 16. For collections of information whose results will be published, outline plans for tabulations, and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

Nationwide and locality based quarterly change in compensation data are released shortly after the close of collection for each quarter. ECI and Employer Costs for Employee Compensation(ECEC) are published on a national and a locality basis. Finally, detailed information will be available annually on the incidence of benefits and benefit provisions.

Employee benefits news releases and publications have a large number of tabulations, including tabulations linking wage levels to benefit incidence rates, counts of establishments offering major benefits to at least one employee, Census division breakouts, and new benefit items.

All published estimates from the NCS are available on the BLS internet site, www.bls.gov. Included on this site are several query tools that allow users to indicate the type of data desired. Customized tabulations are generated by the query tools available.

Data will be adjusted for non-responses (Establishments may either refuse to provide any data or may refuse to provide data for certain occupations or benefits items). The adjustment consists of revising the weights used to aggregate the individual establishments and occupations. In addition, the BLS imputes missing items on pay, benefits costs, participation rates, and provisions.

The BLS also adjusts the weights in a process known as benchmarking. This process adjusts weights to reflect changes in employment that occur between the compilation of the universe from which the sample is drawn and the reference date of publication.

A detailed description of the statistical procedures used in compiling the data is in Part B.

## 17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

Approval to not display the expiration date for OMB approval is not being sought.

## 18. Explain each exception to the certification statement.

There are no exceptions to the certification statement.

1. *For example, according to the NCS Employee Benefits in the United States --March 2019, 85 percent of private industry establishments of over 100 or more employees have health care benefits, as compared to 55 percent of establishments with fewer than one hundred employees. Just as strikingly, 84 percent of private industry establishments with one hundred or more employees offered retirement benefits, as compared to 54 percent of those in establishments with fewer than one hundred employees.* [*http://www.bls.gov/news.release/pdf/ebs2.pdf*](http://www.bls.gov/news.release/pdf/ebs2.pdf)*>* [↑](#footnote-ref-2)