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# A Comparison of Selected Official Wage Measures

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The U.S government produces several different wage and wage-related measures, each with its own source data, methodology, and uses. *Wages* can be a catchall term for several different concepts, including actual wages, earnings, and compensation. Colloquially, people often use these terms interchangeably to refer to the money people receive from their jobs. However, statistical agencies such as the Bureau of Labor Statistics (BLS), Census Bureau, and Bureau of Economic Analysis (BEA) make definitional distinctions among such terms.

Much of the source data for wage or similar measures comes from surveys, each of which has its own definitions and delineations of data. Three such surveys are the Current Population Survey (CPS), the Current Employment Statistics (CES) Survey, and the Quarterly Census of Employment and Wages (QCEW). These surveys are used to construct data series that all measure wages from the perspective of workers and are all able to be used in time series analysis. However, they have a number of methodological differences including, but not limited to, periodicity, workers covered, and aggregation method. These differences are illustrative of the range of methodologies available when the government creates wage measures and of the differences analysts and policymakers must consider when examining wage data and statistics.

Each source and series of wage data has advantages and disadvantages, and none is inherently superior to any other. Rather, the purpose and issue of interest to the person seeking to examine wages generally determines which data are most helpful and suited to a particular analysis. For example, the types of compensation included, perspective of the data (employer or worker), and available disaggregations are all considerations that may call for using one series over another.

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## Introduction

To say that wages are important may be an obvious statement from the perspective of the individual. After all, wages tend to be a major source of income for individuals of working age. Wages allow individuals to purchase the things they need to live, including housing, food, and utilities, to name a few. What may be less obvious is why wages, and specifically if and how they grow, are important to the overall functioning of the economy. Wage growth is often used as a proxy for economic conditions and standard of living. If, over time, wages rise (in inflation-adjusted terms), then workers can afford more or better goods and services, thereby increasing their standard of living. In addition, if wages are growing, aggregate demand (total spending) would generally be strong and economic conditions therefore robust. As a result, if and by how much wages grow can have important policy implications for a wide array of issues.<sup>1</sup>

How to actually define and measure wages is complicated. Colloquially, people often use terms such as *wages*, *earnings*, *compensation*, *pay*, or *income* to mean the money they receive from their jobs. However, statistical agencies such as the Bureau of Labor Statistics (BLS), Census Bureau, and Bureau of Economic Analysis (BEA) make distinctions among such terms. For simplification, this report generally uses the term *wages* to refer to money received from working a job, though terms specific to particular agencies or surveys will be used when series definitions and data are described.

In part because of this definitional issue, there are numerous government measurements of wages. This stands in contrast to many other economic concepts, for which there is only one main source of data. For example, while the federal government produces one statistic for gross domestic product, it produces numerous different measures of wages, compensation, and earnings at the aggregate level. Individual measures of wages discussed in this report include different categories of compensation, such as benefits or bonuses, and cover different groups of workers. Therefore, this report specifically defines each measure and its methodology. Further, there is not one specific measure preferred over others by all policymakers, economists, academics, or journalists. Each measure is different from the next and may cover different groups of wage earners. To this end, which measure of wages a policymaker chooses to consider can have major implications for policy.

Wages are not the same thing as income. In general economic theory, personal income is equal to the maximum amount an individual can consume without affecting his or her wealth. Wages, therefore, are a part of income but do not necessarily constitute all of it. Income may additionally include transfer payments from the government (e.g., Social Security and unemployment insurance payments) and capital income from investments (e.g., dividends, capital gains).<sup>2</sup> Another way to measure income is to distinguish its source as coming from one of the two main factors of production: labor and capital. Labor income is the amount of gross domestic product that is paid out in the form of wages, salaries, and benefits.<sup>3</sup>

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<sup>1</sup> For more information about official labor force statistics, see CRS Report R47241, *Workforce and Labor Policy: Resources for Congressional Staff*, coordinated by Abigail R. Overbay.

<sup>2</sup> John Ruser, Adrienne Pilot, and Charles Nelson, *Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond*, BEA, November 2004, <https://www.bea.gov/system/files/papers/AlternativemeasuresHHincomeFESAC121404.pdf>. For information on personal income, see CRS In Focus IF10501, *Introduction to U.S. Economy: Personal Income*, by Lida R. Weinstock. For a discussion of income trends and the economy, see CRS Report R44705, *The U.S. Income Distribution: Trends and Issues*, by Sarah A. Donovan et al.

<sup>3</sup> Different agencies have differing exact definitions of this concept, which will be addressed in a later textbox. For a

This report covers selected official measures that measure wages from the perspective of workers and illustrate a range of methodologies.<sup>4</sup> The following sections discuss these measures, their uses and methodologies, and considerations for when to use different types of measures. A companion report, CRS Report R47380, *Average Wage Growth and Related Economic Trends in 2022*, by Lida R. Weinstock, discusses recent trends in wages and their interactions with the broader economy.

### Measurement Concepts

Wage data may be aggregated and presented in various ways. The following ways of presenting data hold important implications for how that data should be interpreted.

**Nominal data** refers to data that have not been adjusted for inflation. For example, the dollar amount on a paycheck is a nominal amount.

**Real data** refers to data that have been adjusted for inflation. Real data provide a sense of how the purchasing power of money has changed over time. For example, if an individual makes \$50,000 in nominal terms in a year, in real terms that amount is actually lower because price level increases mean that \$50,000 can buy less at the end of the year than it could in the beginning. Real data are often referred to as nominal data minus inflation. In reality, nominal data are converted to real data using price indices calculated by several agencies.

**Average data** refers to data points representative of a usual value within a distribution. Mathematically, averages are determined by adding together each data point in a distribution and then dividing by the number of data points.

**Median data** refers to data points representative of the middle of a distribution. Median data tend to be influenced less by outliers than average data are, but depending on the distribution of data, they may not be very representative of a typical data point.

**Seasonal adjustment** refers to the process by which data are adjusted for seasonal factors. Seasonally adjusting data smooths out fluctuations that are due to seasonal and calendar influences. For example, predictable seasonal patterns that could affect labor force data include school schedules (such as graduations) and major holidays.<sup>5</sup>

## Selected Wage Series

There are many different sources of data and methods for aggregation and calculation of wages and wage growth in the United States. Each source and methodology produces a unique measure that is not necessarily comparable to any other measure. Importantly, many measures cover different groups of individuals, which may be important in policy decisions that target specific groups of individuals, or otherwise benchmark against a specific wage measure. These differences among measures can result in data that show different levels and trends. To parse any differences in trends, it can be helpful to understand the differences in the measures. This section first provides an overview of a selection of common official wage measures that provide information on compensation from the perspective of the worker at the individual and aggregate level. A detailed methodology discussion follows the overview.

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general overview, see Michael D. Giandrea and Shawn Sprague, “Estimating the U.S. Labor Share,” BLS, February 2017, <https://www.bls.gov/opub/mlr/2017/article/estimating-the-us-labor-share.htm>.

<sup>4</sup> Public data are not inherently better or more widely used than are private data. One of the most widely used sources of data in the United States is private. Automatic Data Processing (ADP) is a private company that provides human resources management software and other services, including payroll services, for many U.S. companies. ADP provides monthly data on labor force trends, including annual pay. For more information, see ADP, “ADP Pay Insights,” <https://payinsights.adp.com/>.

<sup>5</sup> BLS, “What Is Seasonal Adjustment?,” <https://www.bls.gov/cps/seasfaq.htm>.

## Overview of Selected Series

For ease of comparison and methodology discussion, the series in this section are organized by the surveys their data are sourced from. The series come from three different surveys: the Current Population Survey (CPS), the Current Employment Statistics Survey (CES), and the Quarterly Census of Employment and Wages (QCEW). The CPS is a household survey, while the CES and QCEW are establishment surveys. These surveys are discussed in more detail in the following methodology section. Basic information on each survey, its periodicity, and available data breakdowns is provided here.

### Series from the Current Population Survey (CPS)

- **BLS Usual Weekly Earnings:** This series is a quarterly measure of wages based on what individuals estimate they “usually” earn in a week. Data are provided by quartile (buckets that divide the distribution into four parts), with the second quartile representing the median wage. This series can be broken down by sex, race, ethnicity, and age. This series may be less accurate than other sources as it is based on individuals’ estimates. However, this series provides more information on the overall distribution of wages than other series and may therefore be useful to compare the wages of lower and higher wage workers.
- **BLS Median Hourly Earnings:** This series is an annual measure of median wages for workers paid hourly rates. This series can be broken down by sex, race, ethnicity, and age. Median hourly earnings is a specific measure that is not representative of the total labor force and is not provided frequently. Nonetheless, this series may be useful in the context of tracking and understanding the wages and characteristics of hourly workers.
- **Federal Reserve Bank of Atlanta Wage Tracker:** This tracker measures annual median hourly wage growth and provides data on a monthly basis. Data can be broken down by several demographic and job characteristics such as educational attainment, gender, and job stayers versus switchers. Unlike other series, the tracker only provides nominal (i.e., not inflation-adjusted) data, which is less useful in tracking purchasing power over time. The tracker does calculate median wage growth by tracking wage growth for individuals and then selecting the median growth rate. The growth in other series would be a change over time in the average or median wage at one point in time compared to another. For this reason, this series may provide more information on how individuals’ wages are changing over time.

### Series from the Current Employment Statistics Survey (CES)

- **BLS Average Hourly and Weekly Earnings:** BLS provides these series on average wages in dollar terms at both the hourly and weekly level. These series are provided on a monthly basis and can be broken down by industry. Average hourly earnings is one of the most commonly cited measures of wages and is part of the monthly BLS Employment Situation data release. These series can be a useful source of high frequency data.

### Series from the Quarterly Census of Employment and Wages (QCEW)

- **BLS Average Weekly Wage:** This quarterly series provides average weekly wage data by locality, industry, ownership (private or government), and establishment

size. This series is published with a lag and, therefore, is often less current than other quarterly or monthly series. The detailed locality breakdowns make this series useful in studying wage trends down to the county level and comparing wages and wage trends across localities at a level not always possible with other series.

- **BLS Total Wages:** This series is similar to the average weekly wage series except that wages are provided as a summed total instead of an average. BLS additionally provides annual aggregates for this series. Measures of total as opposed to individual wages can be useful in analyzing the health of the economy overall, as opposed to just workers.
- **BEA Wages and Salaries by Industry:** This series provides wage data at the monthly, quarterly, and annual levels for total wages with breakdowns by industry. The advantage of using this series over the total wages BLS series is that it is higher frequency and BEA includes estimates of total military wages. Military personnel are typically not included in wage data, making this series one of the most inclusive sources from the perspective of which workers are covered. The monthly series is imputed from quarterly data and, therefore, may not be as accurate as other monthly wage data.

## Detailed Methodology of Selected Series

As with the above overview, this section is organized by data source and it includes basic information on each survey with relevant definitions. Tables for each survey are provided and include details on the methodology, advantages, and limitations of each series using data from a particular survey.

### CPS

The CPS is administered by the Census Bureau and collects labor force and demographic information on a monthly basis from surveys of a nationally representative sample of households.<sup>6</sup> Results are used to compile data published by BLS—a unit within the Labor Department—and the Federal Reserve Bank of Atlanta. For series published by BLS, data are characterized as earnings and specifically measure wage and salary earnings before taxes and other deductions from the main job of an individual. They do not include any benefits such as employer-provided health insurance. These earnings data are only for wage and salary workers, which does not include any kind of self-employed worker. In this case, *wage and salary workers* includes workers ages 16 and over who receive wages, salaries, commissions, tips, payments in kind, or piece rates.<sup>7</sup> Of the series below, the two BLS series track median earnings, while the Federal Reserve Bank of Atlanta series tracks median earnings growth.

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<sup>6</sup> Despite the CPS being a monthly survey, BLS collects earnings data from only a quarter of the sample each month and therefore publishes earnings data only as quarterly or annual averages. See Census Bureau, *Design and Methodology: Current Population Survey—America’s Source for Labor Force Data*, October 2019, p. 79, <https://www2.census.gov/programs-surveys/cps/methodology/CPS-Tech-Paper-77.pdf>.

<sup>7</sup> BLS, “Handbook of Methods: Current Population Surveys,” <https://www.bls.gov/opub/hom/cps/pdf/cps.pdf>; and Census Bureau, *Design and Methodology: Current Population Survey*.

**Table I. Series Based on Current Population Survey Data**

Series	Methodology	Groups Covered	Periodicity	Advantages	Limitations
BLS Usual Weekly Earnings	Respondents who are employed are asked to report usual earnings before taxes, including overtime, commissions, or tips usually received. Respondents are allowed to interpret <i>usual</i> , but if asked, interviewers provide the following definition: “more than half the weeks worked during the past four or five months.” Data available by percentile or median.	Wage and salary workers	Quarterly	Broad measure of many types of workers. Provides wage breakdowns by demographic characteristics.	Responses about usual earnings are likely to be estimated and not exact. Household survey has a smaller sample size than establishment surveys and is subject to greater sampling error.
BLS Median Hourly Earnings	Employed respondents who report usual earnings hourly are assumed to be paid hourly. Employed respondents who do not report usual earnings in hourly increments are asked if they are paid hourly. The hourly rates of both groups of respondents are included in this series. Median data are published.	Hourly wage workers	Annual	Provides estimates of the number of hourly paid workers at and near the federal minimum wage.	Represents only a subsection of workers and, therefore, may not be representative of the total labor force. Published less frequently than other sources.
Federal Reserve Bank of Atlanta Wage Tracker	Using CPS hourly earnings microdata, the Atlanta Fed calculates the wage growth of specific individuals in the current month from the same month in the previous year. Using the median of these individual wage growth data, median wage growth points are then smoothed by calculating a three-month moving average. Some breakdowns are also available as a 12-month moving average.	Wage and salary workers. This tracker additionally excludes individuals with top-coded earnings, <sup>a</sup> imputed earnings, pay below the federal minimum wage for tip-based workers, and agricultural jobs.	Monthly	Provides a measure that tracks the same individual over time. (Other median wage growth measures track the median wage in one month compared to the median wage in another month.) Relatively high frequency data.	Provides only growth percent change statistics and not dollar amounts. Owing to methodology requirement for individuals to have earnings in current and prior year, dataset has a higher share of older, more educated workers than do other measures using CPS data.

**Sources:** BLS, “Handbook of Methods: Current Population Survey,” <https://www.bls.gov/opub/hom/cps/>; Census Bureau, “Design and Methodology: Current Population Survey—America’s Source for Labor Force Data,” <https://www2.census.gov/programs-surveys/cps/methodology/CPS-Tech-Paper-77.pdf>; and Federal Reserve Bank of Atlanta, “Wage Growth Tracker,” Methodology, <https://www.atlantafed.org/chcs/wage-growth-tracker?panel=2>.

**Notes:**



- a. The Atlanta Fed defines *top-coded earnings* as those in which the product of usual hours and usual hourly wages exceeds an annualized wage of \$100,000 before 2003 and \$150,000 after 2003. BLS computes top-codes such that the product of usual hours times usual hourly wage does not exceed an annualized wage of \$150,000. Generally, top-coded data refer to data points above an upper bound (\$150,000 in this case) that are censored to ensure the confidentiality of the data. For more information on CPS usual hourly earnings top-coding, see for example, <https://www.census.gov/programs-surveys/cps/technical-documentation/methodology/topcoding-of-usual-hourly-earnings.html>.

## CES

The CES is a monthly survey of businesses and government agencies that gathers establishment employment information, including wages. It is administered and used to compile published data by BLS. CES data are characterized as earnings or payrolls. In this context, *earnings* is defined as the gross actual returns to employees excluding benefits, irregular bonuses, retroactive items, and payroll taxes. CES is an establishment survey, meaning that workers who do not work for establishments are not included.<sup>8</sup> Excluded workers include proprietors, the unincorporated self-employed, unpaid volunteer or family employees, domestic employees, government employees, and military personnel.<sup>9</sup>

**Table 2. Series Based on Current Employment Statistics Survey Data**

Series	Methodology	Groups Covered	Periodicity	Advantages	Limitations
BLS Average Earnings	Average hourly earnings are calculated by dividing aggregate payrolls <sup>a</sup> by all employee hours. Average weekly earnings are calculated by multiplying average weekly hours and average hourly earnings.	Nonfarm wage and salary workers, excluding government workers.	Monthly	Widely used economic indicator; provides input into other major economic indicators; provides breakdowns by industry. Relatively high frequency data. Uses actual payroll data, not respondent estimates.	More sensitive to outliers and composition of employment than are other measures.

**Source:** BLS, “Handbook of Methods: Current Employment Statistics,” <https://www.bls.gov/opub/hom/ces/>.

**Notes:**

- a. BLS defines *aggregate payrolls* as total regular pay earned by employees before deductions of any kind. Bonuses, retroactive pay, in-kind payments, and employer benefits are excluded.

<sup>8</sup> *Establishment* is defined as “economic units that produce goods or services, usually at a single physical location, and are engaged in one or predominantly one type of economic activity.” Colloquially, establishments may be referred to as businesses, but BLS makes definitional distinctions between the two terms. See BLS, “Glossary,” <https://www.bls.gov/bls/glossary.htm>.

<sup>9</sup> BLS, “Technical Notes for the Current Employment Statistics Survey,” <https://www.bls.gov/web/empstat/cestn.htm>; BLS, “Handbook of Methods: Current Employment Statistics,” <https://www.bls.gov/opub/hom/ces/home.htm>; and BLS, “CES Frequently Asked Questions,” <https://www.bls.gov/web/empstat/cesfaq.htm>.

In addition to the nominal wage data, BLS also provides a dedicated news release for real wage data based on CES.<sup>10</sup>

## QCEW

The QCEW is a quarterly aggregation of employment information reported by employers. Information is collected by BLS and used to compile data released by BLS and BEA. The QCEW uses state unemployment insurance administrative data, Annual Refiling Survey<sup>11</sup> data, and Multiple Worksite Report<sup>12</sup> data. QCEW data are characterized as pay, defined as “the total compensation paid, including bonuses, stock options, severance pay, profit distributions, the cash value of meals and lodging, tips and other gratuities, and, in some states, employer contributions to certain deferred compensation plans (such as 401(k) plans), during the calendar year, regardless of when the services were performed.”<sup>13</sup>

**Table 3. Series Based on Quarterly Census of Employment and Wages Data**

Series	Methodology	Groups Covered	Periodicity	Advantages	Limitations
BLS Average Weekly Pay	Establishment wage data are summed for specific industry, geography, and size subdomains. Data are imputed for establishments that fail to respond in a timely manner. Averages are then calculated from the subdomain totals.	All employees of employers subject to state and federal unemployment insurance laws.	Quarterly	Provides detailed locality data. Uses information filed by establishments, not survey respondent estimates.	Publication quarterly with up to a five-month lag.
BLS Total Wages	Establishment wage data are summed for specific industry, geography, and size subdomains. Data are imputed for establishments that fail to respond in a timely manner.	All employees of employers subject to state and federal unemployment insurance laws.	Quarterly, Annual	Provides detailed locality data. One of the few sources of total wage data.	Publication quarterly with up to a five-month lag.

<sup>10</sup> For the latest release, see <https://www.bls.gov/news.release/realer.nr0.htm>.

<sup>11</sup> The Annual Refiling Survey is a questionnaire that asks businesses to verify general information including industry classification. See BLS, “Annual Refiling Survey (ARS) Respondents,” <https://www.bls.gov/respondents/ars/home.htm>.

<sup>12</sup> The Multiple Worksite Report is a form that asks employers with multiple locations for employment and wage data for all locations covered under a single unemployment insurance account in a given state. See BLS, “Multiple Worksite (MWR) Respondents,” <https://www.bls.gov/respondents/mwr/home.htm>.

<sup>13</sup> BLS, “Handbook of Methods: Quarterly Census of Employment and Wages,” <https://www.bls.gov/opub/hom/cew/home.htm>.

Series	Methodology	Groups Covered	Periodicity	Advantages	Limitations
BEA Wages and Salaries by Industry <sup>a</sup>	BEA adjusts QCEW data by estimating wages and salaries of military personnel, <sup>b</sup> adjusting estimates for employees that are not fully captured (such as agricultural workers), and adjusting for definitional differences in the QCEW and national income and product accounts. Total wages by legal form and sector are estimated using additional industry payroll data from the Economic Census. QCEW quarterly estimates are usually available five months after the end of a quarter, so BEA estimates current quarterly wages and salaries by extrapolating monthly estimates from historical personal income data (which are based on most recent QCEW data).	All workers including nonfarm, farm, and military. Wages and salaries excludes proprietors, but proprietors' income is included as a different line item in the BEA Personal Income tables.	Monthly, Quarterly, Annual	Provides detailed industry data. Includes military personnel. Uses information filed by establishments, not survey respondent estimates.	Current monthly and quarterly estimates are not published by detailed industry. Because of lags in QCEW data, current monthly and quarterly estimates are extrapolated based on historical data.

**Sources:** BLS, “Handbook of Methods: Quarterly Census of Employment and Wages,” <https://www.bls.gov/opub/hom/cew/>; and BEA, NIPA, *Handbook*, Chapter 10: Compensation of Employees, <https://www.bea.gov/resources/methodologies/nipa-handbook/pdf/chapter-10.pdf>.

**Notes:**

- a. BEA additionally produces a series on total compensation of workers, which includes supplements to wages and salaries—employer payments that are made on behalf of employees, such as employer contributions to pension funds. These sorts of employer payments are not within the scope of this report.
- b. Wages and salaries of military personnel are estimated using military budget data and includes cash wages and in kind compensation.

### Related Series

The below list of data series is not an all-inclusive list. Rather, this list includes a selection of series published by the U.S. government that measure concepts related to wages, earnings, and compensation and, therefore, may be useful to economists and policymakers. These series either provide wage data from a perspective other than workers, are not useful in analyzing trends, or are concepts related to wages but more expansive than just the money received from a job.

**BEA Personal Income:** “the income that U.S. residents get from paychecks, employer-provided supplements such as insurance, business ownership, rental property, Social Security and other government benefits, interest,

and dividends.”<sup>14</sup> Personal income data are aggregate and available at the monthly level. Data can be found at <https://www.bea.gov/data/income-saving/personal-income>.

**Census American Community Survey (ACS) Household and Family Income:** “the sum of the amounts reported separately for wage or salary income; net self-employment income; interest, dividends, or net rental or royalty income or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); public assistance or welfare payments; retirement, survivor, or disability pensions; and all other income.”<sup>15</sup> ACS household and family income data are available on an annual basis and include median and mean values. Data are available at <https://www.census.gov/programs-surveys/acs/data.html>.

**BLS National Compensation Survey (NCS) Employment Cost Index (ECI):** “a measure of the change in the employer costs of labor, independent of employment shifts among occupations and industry categories.” Indexes are available for total compensation, wages and salaries, and benefits for all civilian workers, private sector workers, and state and local government workers.<sup>16</sup> Data are available at the quarterly level. Data can be found at <https://www.bls.gov/ncs/>.

**BLS NCS Employer Costs for Employee Compensation (ECEC):** this series “measures the average costs to employers for wages and salaries, and benefits, per employee hour worked.” Data are available at the quarterly level for total compensation, wages and salaries, total benefits, and selected benefits.<sup>17</sup> Data can be found at <https://www.bls.gov/ncs/>.

**BLS Occupational Employment and Wage Statistics (OEWS) Wages:** this survey provides average, median, and several percentiles of wages. The survey covers “wage and salary workers in nonfarm establishments and does not include the self-employed, owners and partners in unincorporated firms, household workers, or unpaid family workers.”<sup>18</sup> The estimates are constructed from samples of businesses that report to state unemployment insurance programs. OEWS data are useful in providing locality and industry breakdowns but are less useful for comparing two or more points in time.<sup>19</sup> Data are available annually with a May reference date by occupation, locality, and industry at <https://www.bls.gov/oes/tables.htm>.

**BLS & BEA Labor Share:** *Labor share* is generally defined as the portion of output that accrues to workers. BLS calculates labor share by sector as the ratio of labor compensation in a given sector to current dollar output.<sup>20</sup> Data are available at the quarterly level at <https://www.bls.gov/productivity/data.htm>. BEA additionally provides the portion of gross domestic income that is paid to labor in the form of compensation of employees. BEA data are also available quarterly in the National Income and Product Accounts, Table I.1.1, at <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey>.

## Comparing Wage Data

With so many series to choose from, how can it be determined which is the best wage measure to consider? The answer may sometimes be obvious depending on the use of the data. For example, one might choose CES average wage data or Atlanta Fed wage growth data because they are available monthly. Median data might be preferred to average data or vice versa depending on whether there is concern about outliers in the data.<sup>21</sup> Certain sources offer useful disaggregations by individual characteristic, locality, or industry. Different measures cover different groups of

<sup>14</sup> BEA, “Income and Saving,” <https://www.bea.gov/resources/learning-center/what-to-know-income-saving>.

<sup>15</sup> Census Bureau, *American Community Survey and Puerto Rico Community Survey 2020 Subject Definitions*, 2020, [https://www2.census.gov/programs-surveys/acs/tech\\_docs/subject\\_definitions/2020\\_ACSSubjectDefinitions.pdf](https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2020_ACSSubjectDefinitions.pdf).

<sup>16</sup> BLS, “Handbook of Methods: National Compensation Measures,” <https://www.bls.gov/opub/hom/ncs/pdf/ncs.pdf>.

<sup>17</sup> BLS, “Handbook of Methods: National Compensation Measures.”

<sup>18</sup> BLS, “Occupational Employment and Wage Statistics Overview,” June 22, 2022, [https://www.bls.gov/oes/oes\\_emp.htm](https://www.bls.gov/oes/oes_emp.htm).

<sup>19</sup> BLS, “Occupational Employment and Wage Statistics Frequently Asked Questions,” [https://www.bls.gov/oes/oes\\_ques.htm](https://www.bls.gov/oes/oes_ques.htm).

<sup>20</sup> BLS, “Handbook of Methods: Productivity Measures: Business Sector and Major Subsectors: Calculation,” <https://www.bls.gov/opub/hom/msp/calculation.htm>.

<sup>21</sup> Median data tend to be more representative of a “typical” value because their value is not affected by the value of outliers. Averages, however, may be a more inclusive measure because all values are included in the calculation.

workers, from narrow to broad. Additionally, the definitional differences in wages, earnings, and compensation might make one series more attractive than another. For example, a compensation measure such as the ECI may provide a more accurate snapshot of the cost of employing workers to companies than an average earnings measure of pay received by employees (such as from the CES). In short, which data may be most useful depends on context, and there is no “best” measure for all situations. This final section discusses a few general things to consider when deciding on a wage measure to use in any given situation.

## **How Are the Data Measured?**

One of the main differences in the series discussed in this report is whether data are provided as averages or medians. Average data are more vulnerable to changes in the composition of the workforce than are median or total data. For example, average data may increase more significantly than median data if low-wage workers drop out of the labor force. In this case the data may not provide a full picture of workers’ well-being. Median data represent the middle or typical value of a distribution and, therefore, may be more useful than average data in analyzing point estimates or short-term trends. Average and median data are usually both reasonable choices for longer-term trend analysis, and the decision between the two is more about preference in this situation.

Another key difference in how data are measured and presented is whether the data represent total wages or individual wages. Individual wages give a view of what a median or average worker makes. This is a generally intuitive measure because it is easily comparable to a minimum wage or the personal wage of the interested party. However, total wages can be useful in analyzing aggregate trends and can give a better look at concepts like the current size and state of the labor market.

## **Which Workers Are Included?**

The types of workers included in the wage series discussed in this report range from narrow to broad. More narrow measures, such as wages for hourly workers, may be useful in analyzing questions about such a group, while broader measures may be more useful in providing a snapshot of the labor force as a whole. While the broadest measures of wages may seem the most useful or comprehensive at first glance, there are reasons why economists or policymakers may want to use a less inclusive measure. For example, in the context of unemployment insurance policy, it may be more useful to look at wages that include only workers covered by unemployment insurance. It can also simplify analysis to use a measure that does not include agricultural workers owing to the seasonality of this work, the complications of self-employment, unpaid family employment, hobby farmers, and the unknown number of undocumented workers in the agriculture industry.<sup>22</sup>

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<sup>22</sup> Federal Reserve Bank of St. Louis, “Nonfarm Payrolls: Why Farmers Aren’t Included in Jobs Data,” July 3, 2019, <https://www.stlouisfed.org/open-vault/2019/july/nonfarm-payrolls-why-farmers-not-included>.

## **Which Types of Compensation Are Included?**

Different measures include different types of compensation given that definitions of wages change from survey to survey. For example, compensation that is not part of base salaries is not always included in measures. Benefits, taxes, and bonuses are not included in all measures. Series based on QCEW data include total compensation, whereas series based on CPS and CES data do not include benefits or irregular compensation. A total compensation measure is useful for understanding all forms of payment workers receive, whereas some of the more narrowly defined measures may give a better understanding of the typical amount of money a worker takes home in a specified period and budgets for living expenses.

## **What Breakdowns Are Available?**

One of the most obvious ways to decide on a wage series is by how that series can be broken down to measure certain subgroups. Industry, locality, and demographic breakdowns may all be useful under certain circumstances. It can be particularly useful to choose series in this way when comparisons are being made between some total and a subcategory. Where possible, using the same type of series within one analysis is advantageous for isolating differences solely based on factors such as race, age, or state, for example.

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