Congressional Budget Office

Testimony

Comparisons of Federal and Private-Sector Employees' Compensation, 2011 to 2015

Joseph Kile
Assistant Director for Microeconomic Studies

Before the
Committee on Oversight and Government Reform
United States House of Representatives

May 18, 2017

This document is embargoed until it is delivered at 9:00 a.m. (EDT) on Thursday, May 18, 2017. The contents may not be published, transmitted, or otherwise communicated by any print, broadcast, or electronic media before that time.

Notes

Numbers in the text, tables, and figures of this testimony may not add up to totals because of rounding. For the same reason, the percentage differences shown in some of the tables may not correspond precisely to the dollar amounts shown.

Unless otherwise indicated, the numbers in the tables and figures apply to full-time, full-year workers.

Wages, benefits, and total compensation in this testimony were converted to 2015 dollars using the employment cost index.

Contents

Chairman Chaffetz, Ranking Member Cummings, and Members of the Committee, thank you for inviting me to testify about the Congressional Budget Office's recent report comparing the compensation of federal and private-sector employees during the period from 2011 to 2015.[1] My testimony today summarizes that report.

Summary

The federal government employs about 2.2 million civilian workers—1.5 percent of the U.S. workforce—spread among more than 100 agencies in jobs that represent over 650 occupations. As a result, the government employs workers with a broad complement of talents, skills, and experience, and it competes with other government and private-sector employers for people who possess the mix of attributes needed to do the work of its agencies.

In fiscal year 2016, the government spent roughly $215 billion to compensate federal civilian employees. About two-thirds of that total was spent on civilian personnel working in the Department of Defense, the Department of Veterans Affairs, or the Department of Homeland Security. Federal employees typically receive periodic increases in their wages on the basis of performance, longevity, and changes in private-sector pay. However, lawmakers eliminated annual across-the-board increases for most federal civilian workers in calendar years 2011, 2012, and 2013.

How does the compensation of federal civilian employees compare with that of employees in the private sector? The answer to that question is complicated by the fact that the federal and private-sector workforces differ in characteristics that can affect compensation, such as experience, education, and occupation. On the whole, federal workers tend to be older, more educated, and more concentrated in professional occupations than private-sector workers. To account for such differences, the Congressional Budget Office has used data for 2011 through 2015 reported by a sample of households and employers to estimate differences between the cost of wages and benefits for federal employees and the cost of wages and benefits for similar private-sector employees, defined as those having a set of similar observable characteristics. Specifically, in its analysis, CBO sought to account for differences in individuals' level of education, years of work experience, occupation, size of employer, geographic location (region of the country and urban or rural location), veteran status, and various demographic characteristics (age, sex, race, ethnicity, marital status, immigration status, and citizenship). This testimony updates a 2012 CBO report that compared the compensation of federal and private-sector employees for the 2005–2010 period.[2]

Even among workers with similar observable characteristics, however, employees of the federal government and in the private sector may differ in other traits, such as motivation or effort, that are not easy to measure but that can matter a great deal for individuals' compensation. Moreover, substantial ranges of compensation exist in both the federal government and the private sector among workers who have similar observable attributes. Therefore, even within groups of workers who have such similarities, the average differences in compensation between federal and private-sector employees do not indicate whether particular federal employees would receive more or less compensation performing a similar job in the private sector.

CBO's analysis focuses on wages, benefits, and total compensation (the sum of wages and benefits). It is intended to address the question of how the federal government's compensation costs would change if the average cost of employing federal workers was the same as that of employing private-sector workers with certain similar observable characteristics.

Wages

During the 2011–2015 period, the difference between the wages of federal civilian employees and those of similar private-sector employees varied widely depending on the employees' educational attainment. The extent of that variation is evident in the differences in wages for workers with a bachelor's degree (the most common level of education in the federal workforce), the least educated workers, and the most educated workers:

- Federal civilian workers whose highest level of education was a bachelor's degree earned 5 percent more, on average, in the federal government than in the private sector (see Summary Figure 1).

1. Congressional Budget Office, *Comparing the Compensation of Federal and Private-Sector Employees, 2011 to 2015* (April 2017), www.cbo.gov/publication/52637.

2. Congressional Budget Office, *Comparing the Compensation of Federal and Private-Sector Employees* (January 2012), www.cbo.gov/publication/42921.

- Federal civilian workers with no more than a high school education earned 34 percent more, on average, than similar workers in the private sector.

- By contrast, federal workers with a professional degree or doctorate earned 24 percent less, on average, than their private-sector counterparts.

Overall, the federal government would have reduced its spending on wages by 3 percent if it had decreased the pay of its less educated employees and increased the pay of its more educated employees to match the wages of their private-sector counterparts.

Those estimates do not show precisely what federal workers would earn if they were employed in a comparable position in the private sector. The difference between what federal employees earn and what they would earn in the private sector could be larger or smaller depending on characteristics that were not included in this analysis (because such traits are not easy to measure). In addition, the estimated differences depend on how well the observable characteristics were measured in the samples of employees used by CBO and on other factors that are inherent in any statistical analysis.

The span between the wages of high- and low-paid employees was narrower in the federal government than in the private sector, even after accounting for employees' education and other observable traits. The narrower dispersion of wages among federal employees may reflect the constraints of federal pay systems, which make it harder for managers to reward the best performers or to limit the pay of poor performers.

Benefits

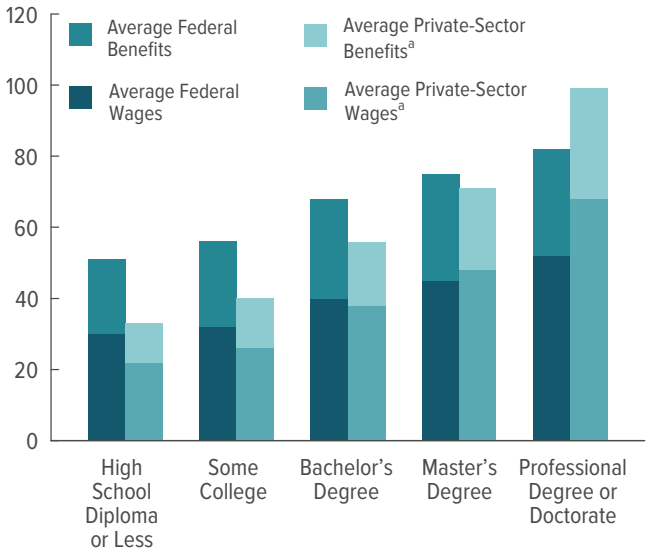
During the 2011–2015 period, the federal and private sectors differed much more with regard to the costs that employers incurred in providing current and future benefits—including health insurance, retirement benefits, and paid leave—than they did with regard to wages. Again, the extent of that difference varied according to workers' educational attainment:

- Average benefits were 52 percent higher for federal employees whose highest level of education was a bachelor's degree than for similar private-sector employees (see Summary Table 1).

Summary Figure 1.

Average Compensation of Federal and Private-Sector Workers, by Educational Attainment

2015 Dollars per Hour



Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey, the Office of Personnel Management, and the National Compensation Survey.

The wages shown here include overtime pay, tips, commissions, and bonuses. The benefits shown here are measured as the average cost, per hour worked, that an employer incurs in providing noncash compensation.

a. Average wages and benefits for private-sector workers who resemble federal workers in occupation, years of work experience, and certain other observable characteristics that are likely to affect compensation.

- Average benefits were 93 percent higher for federal employees with no more than a high school education than for their private-sector counterparts.

- Among employees with a doctorate or professional degree, by contrast, average benefits were about the same in the two sectors.

On average for workers at all levels of education, the cost of benefits was 47 percent higher for federal civilian employees than for private-sector employees with certain similar observable characteristics, CBO estimates.

The most important factor contributing to differences between the two sectors in the costs of benefits is the defined benefit pension plan that is available to most

Summary Table 1.

Differences in Average Hourly Compensation Between Federal and Private-Sector Workers, by Educational Attainment

	Difference in 2015 Dollars per Hour			Percentage Difference		
	Wages	Benefits	Total Compensation[a]	Wages	Benefits	Total Compensation
High School Diploma or Less	$8	$10	$18	34%	93%	53%
Bachelor's Degree	$2	$9	$12	5%	52%	21%
Professional Degree or Doctorate	-$16	-$1	-$18	-24%	-3%	-18%

Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey, the Office of Personnel Management, and the National Compensation Survey.

CBO compared average hourly compensation (wages, benefits, and total compensation converted to 2015 dollars) for federal civilian workers and for private-sector workers with certain similar observable characteristics that affect compensation—including occupation, years of experience, and size of employer—by the highest level of education that workers attained.

Positive numbers indicate that, on average, wages, benefits, or total compensation was higher in the 2011–2015 period for federal employees than for similar private-sector employees. Negative numbers indicate the opposite.

a. The numbers shown for total compensation may not equal the sum of the numbers for wages and benefits because of rounding to the nearest dollar and because of the composition of the samples used by CBO.

federal employees.[3] Such plans have become less common in the private sector. CBO's estimates of the costs of benefits are much more uncertain than its estimates of wages, primarily because the cost of defined benefit pensions that will be paid in the future is more difficult to quantify and because less-detailed data are available about benefits than about wages.

Total Compensation

As with its components (wages and benefits), total compensation differed by varying degrees between the federal government and the private sector over the 2011–2015 period depending on workers' educational attainment:

- Among workers whose education culminated in a bachelor's degree, the cost of total compensation averaged 21 percent more for federal workers than for similar workers in the private sector.
- Among workers with a high school diploma or less education, total compensation costs averaged 53 percent more for federal employees than for their private-sector counterparts.
- Total compensation costs among workers with a professional degree or doctorate, by contrast, were 18 percent lower for federal employees than for similar private-sector employees, on average.

Overall, the federal government paid 17 percent more in total compensation than it would have if average compensation had been comparable with that in the private sector, after accounting for certain observable characteristics of workers.

Comparison With CBO's Analysis of the 2005–2010 Period

Some of the differences between federal and private-sector compensation have changed since CBO's previous analysis of the issue, which covered the years from 2005 to 2010. For instance, the average total compensation of federal workers without a bachelor's degree exceeded that of their counterparts in the private sector by more between 2011 and 2015 than between 2005 and 2010. Conversely, relative to their private-sector counterparts, federal workers with a master's degree received less average total compensation during the 2011–2015 period than during the 2005–2010 period. The differences in total compensation by educational attainment changed because wages grew more quickly among less educated workers in the federal government than they did among workers in the private sector and because CBO adjusted

3. Defined benefit plans provide retirement income that is based on fixed formulas, and the amount of that income is usually determined by an employee's salary history and years of service.

its approach to determining who is a federal employee. (Except for that adjustment, both analyses used broadly similar approaches.)

Two significant policy changes have affected federal wages since 2010. First, lawmakers eliminated across-the-board salary increases for federal employees from 2011 to 2013, limiting the total increase from 2010 through 2015 to 2 percent. In contrast, salaries increased by about 10 percent in the private sector over the 2010–2015 period. However, in addition to the across-the-board increase of 2 percent, average federal hourly wages were boosted by a decrease in federal hiring—because recently hired federal employees typically have lower salaries than other federal employees—and by a temporary reduction in the number of hours worked by salaried federal employees.

Second, lawmakers increased the share of wages that workers first hired after 2012 must contribute to the federal defined benefit retirement plan. That change will gradually reduce the cost to the federal government of defined benefit pensions beginning in 2017, but it does not factor into this analysis because workers hired after 2012 have not yet accumulated the five years of service needed to receive those benefits.

Scope of the Analysis

CBO's results apply to the cost of employing full-time, full-year workers. The analysis focuses on those workers—who accounted for about 94 percent of the total hours worked by federal employees from 2011 through 2015—because more-accurate data are available for them than for other workers. CBO measured the cost of employing those workers as the present value of providing compensation, some of which may be paid out in the future. (A present value is a single number that expresses a flow of current and future payments in terms of an equivalent lump sum paid today.) Thus, the cost of employing federal or private-sector workers includes an estimate of the cost of retirement benefits to be paid in the future to current employees. That present-value approach differs from the budgetary treatment of retirement benefits for federal workers; the cost of those benefits is recorded as federal outlays when people receive them rather than when the commitment to pay them is incurred.

CBO's analysis is limited to selected benefits (such as health insurance and paid leave) provided to federal and private-sector workers. The analysis excludes certain benefits some workers receive—for example, the above-market rate of return the federal government offers its employees through the G Fund (one of the investment options in their retirement plan) and the stock options that some private-sector firms provide to their employees. In CBO's judgment, the benefits that are not included in this analysis are less costly, on average, than the benefits that are included.

A key consideration in setting compensation is the ability to recruit and retain a highly qualified workforce. But assessing how changes in compensation would affect the federal government's ability to recruit and retain the personnel it needs is beyond the scope of this analysis. Factors other than the amount of compensation can affect that ability. For example, greater job security tends to decrease the compensation that the federal government needs to offer, relative to compensation in the private sector, to attract and retain highly qualified employees. Conversely, the government's cost of total compensation for a federal employee includes a greater share of costs for retirement benefits, which workers may find less valuable than an equivalent amount of cash received today. If so, and if all other things are equal, that mix of compensation would tend to increase the total amount of compensation needed to pay federal workers relative to similar workers in the private sector.

Comparing the Compensation of Federal and Private-Sector Employees

The Federal Workforce

The federal government employs about 2.2 million workers (not counting military personnel or employees of the U.S. Postal Service) in a wide variety of departments, agencies, and occupations. Those workers receive compensation in the form of wages and benefits, such as health insurance and pensions, at a total cost to the government of about $215 billion in fiscal year 2016. About 65 percent of that amount is spent on the three departments that employ the most workers: the Departments of Defense, Veterans Affairs, and Homeland Security.

Size of the Federal Workforce

For the past 30 years, the number of civilians employed by the federal government has hovered around 2 million people (see Figure 1).[1] During that period, federal employees have accounted for a declining share of the total U.S. workforce, because employment by the private sector and by state and local governments has grown along with the economy. In 1985, when about 85 million people worked in the private sector and 13 million worked for state or local governments, federal employees made up 2.1 percent of the workforce. By 2015, private-sector employment had reached 123 million and employment by state and local governments had reached 19 million. As a result, federal civilian employees accounted for 1.5 percent of the workforce in that year.

Besides federal civilian workers, who are the focus of this analysis, the government directly or indirectly employs other people to provide various services. In particular, the armed services include about 2.2 million uniformed personnel, about 1 million of whom are reservists. (The Congressional Budget Office has analyzed the compensation of military personnel in several publications.)[2] In addition, about 700,000 people work for government enterprises that typically pay for their employees' compensation through the sale of services rather than through tax revenues. (By far the largest government enterprise in terms of employment is the Postal Service.) Finally, because the federal government uses the private sector to carry out some of its functions, a number of private-sector employees work under contract to the federal government but have their compensation set by their employer.[3] This analysis does not include military personnel or employees of self-financing government enterprises such as the Postal Service; federal contractors are included as private-sector workers.

1. In this testimony, the size of a workforce is measured by the number of full-time and part-time employees. An alternative measure of size converts the work schedules of part-time employees to a full-time basis. Because part-time work is less common in the federal government, federal workers are a larger portion of the workforce under that alternative measure—2.3 percent in 1985 and 1.6 percent in 2015.

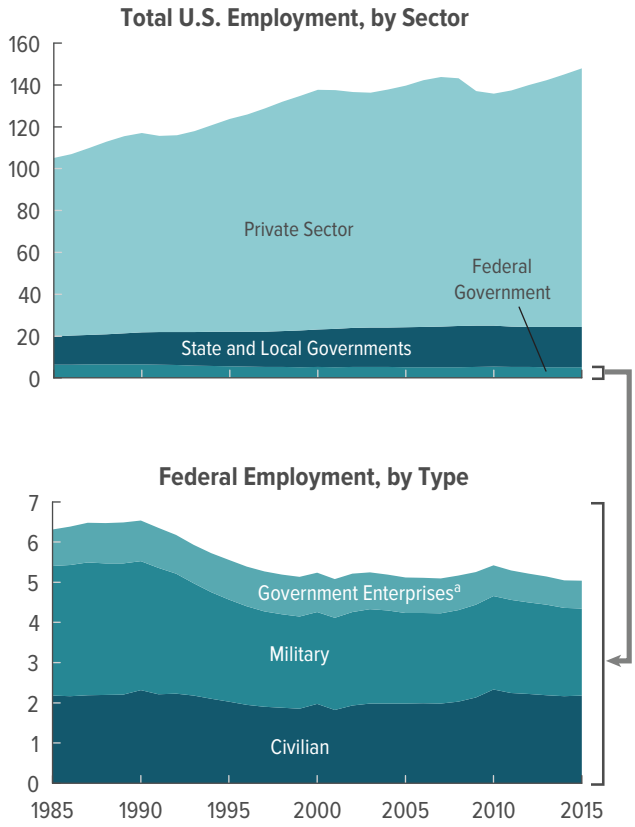
2. For a comparison of military and private-sector compensation, see the testimony of Carla Tighe Murray, Senior Analyst for Military Compensation and Health Care, Congressional Budget Office, before the Subcommittee on Personnel of the Senate Committee on Armed Services, *Evaluating Military Compensation* (April 28, 2010), www.cbo.gov/publication/21430; and Congressional Budget Office, *Evaluating Military Compensation* (June 2007), www.cbo.gov/publication/18788. CBO compared military compensation with federal civilian compensation in "Analysis of Federal Civilian and Military Compensation," an attachment to a letter to the Honorable Steny H. Hoyer (January 20, 2011), www.cbo.gov/publication/22002.

3. The number of federal contractors is estimated in John J. Dilulio, *10 Questions and Answers About America's "Big Government"* (Brookings Institution, February 2017), http://tinyurl.com/gouqmpw. Spending on federal contractors is tabulated in Congressional Budget Office, *Federal Contracts and the Contracted Workforce* (March 2015), www.cbo.gov/publication/49931. The compensation of federal contractors is discussed in Project on Government Oversight, *Bad Business: Billions of Taxpayer Dollars Wasted on Hiring Contractors* (POGO, 2011), www.pogo.org/our-work/reports/2011/co-gp-20110913.html. In addition to federal contractors, the government supports the jobs of other private-sector employees through its purchases of goods and services produced by private firms. For example, the government buys computers and office supplies from companies in the private sector.

Figure 1.

Trends in Government and Private-Sector Employment Since 1985

Millions of People



Source: Congressional Budget Office, using data from the national income and product accounts.

This figure includes employees who work part time or part of the year.

a. Government enterprises are federal entities that typically fund their operating costs, including employees' compensation, through the sale of services rather than through tax revenues. By far the largest government enterprise in terms of employment is the U.S. Postal Service.

Agencies and Occupations

Federal civilian employees perform a broad range of tasks in more than 650 occupations. Although federal workers are employed by more than 100 departments and agencies, 60 percent of them work at three departments in the executive branch (see Figure 2):

- The Department of Defense employs 34 percent of the federal civilian workforce. Those employees work in hundreds of different occupations; the most common are program administrator, information technology worker, and program analyst.
- The Department of Veterans Affairs employs 17 percent of the federal civilian workforce. About 60 percent of its employees work in various medical professions, the most common of which is nursing.
- The Department of Homeland Security employs 9 percent of the federal civilian workforce. The most common job in that department is inspector for the Transportation Security Administration, which accounts for just under a quarter of the department's employees.

An additional 37 percent of federal employees work for the other departments and agencies of the executive branch. The most common occupations among those workers are program administrator, information technology worker, and program analyst. The remaining 3 percent of the federal workforce is employed by the legislative and judicial branches of government.

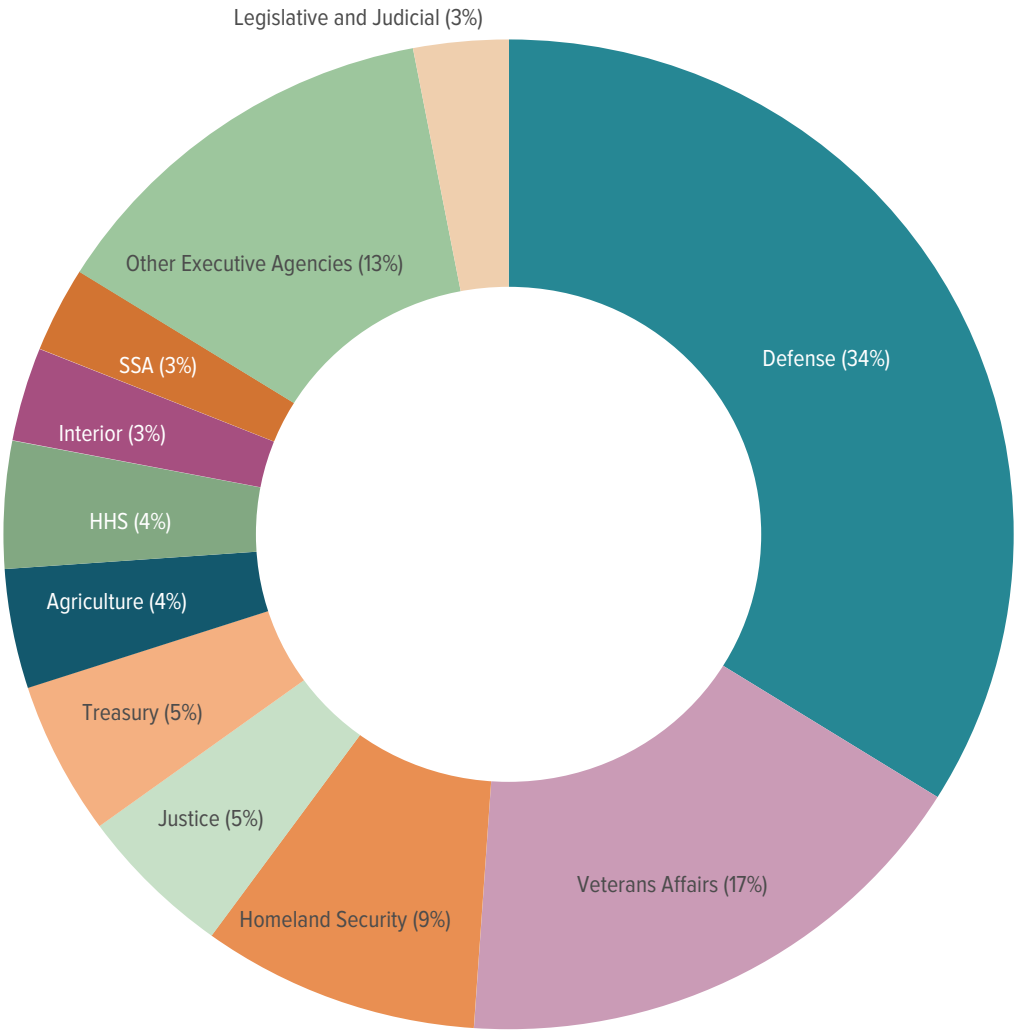
Differences Between the Federal and Private-Sector Workforces

Various characteristics of employees—including their occupation, education, and age—are likely to influence their compensation, regardless of whether they work for the federal government or the private sector. The federal and private-sector workforces differ in several significant ways that CBO incorporated into its comparison of compensation between the two sectors.

For example, 36 percent of federal employees work in professional occupations, such as the sciences or engineering, compared with only 20 percent of private-sector employees; in contrast, 24 percent of private-sector employees work in occupations such as sales, production, or construction, compared with only 5 percent of federal employees (see Table 1). Professional occupations generally require more formal training or experience than do the occupations more common in the private sector. Partly because of that difference, the average age of federal employees is substantially higher than that of private-sector employees (46 versus 42). The greater concentration of federal workers in professional occupations also means that they are more likely to have a bachelor's degree: Sixty percent of the federal workforce has at least that much education, compared with 35 percent of the private-sector workforce (see Figure 3). Likewise, 28 percent of federal employees have a master's, professional (such as a law or medical degree), or doctoral degree, compared with 11 percent of private-sector employees.

Figure 2.

Federal Civilian Employment, by Branch and Department, 2015



Source: Congressional Budget Office, using data from the Office of Personnel Management.

This figure includes federal employees who work part time or part of the year. It excludes military personnel (who account for roughly the same number as federal civilian employees) and employees of government enterprises, such as the U.S. Postal Service. It also excludes the Central Intelligence Agency, the National Security Agency, the Defense Intelligence Agency, and the National Imagery and Mapping Agency.

HHS = Department of Health and Human Services; SSA = Social Security Administration.

The characteristics of employers, as well as those of workers, differ between the federal government and the private sector. Many federal agencies are quite large; the biggest, the Department of Defense, employs about 750,000 civilian workers. Nearly all federal employees work for entities that have at least 1,000 workers, whereas only about 42 percent of private-sector employees work for entities of that size.

The services that the federal government provides are needed across the nation, so federal employees work in a wide variety of locations. For instance, nurses and doctors who work at veterans' hospitals, security screeners at airports, and air traffic controllers are spread throughout the United States. In all, about 16 percent of federal employees work in or around Washington, D.C. (compared with 2 percent of the private-sector workforce); the

Table 1.

Characteristics of the Federal and Private-Sector Workforces

Percentage of Workforce

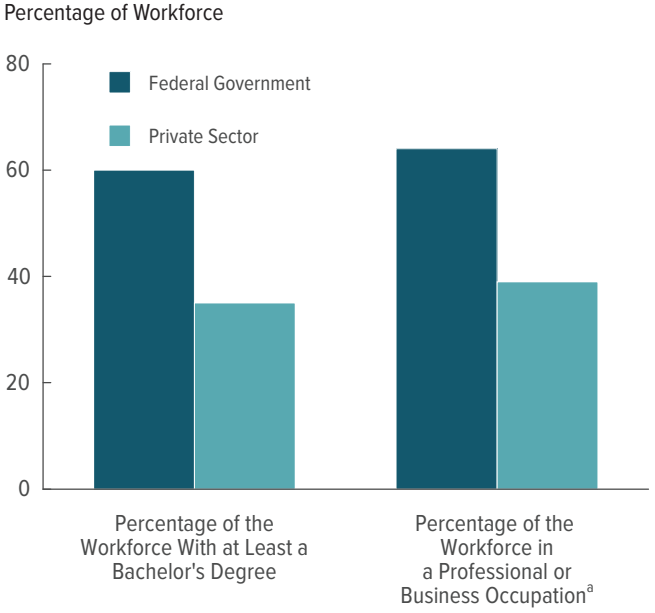
	Federal Government	Private Sector
Highest Educational Attainment		
High school diploma or less	13	36
Some college	27	29
Bachelor's degree	31	24
Master's degree	20	8
Professional degree or doctorate	9	3
Total	**100**	**100**
Occupation		
Professional	36	20
Management, business, financial	27	19
Administrative or office support	12	13
Service	12	12
Transportation	3	7
Installation, maintenance, repair	3	4
Production	2	8
Construction, extraction	2	5
Sales	1	11
Farming, fishing, forestry	1	1
Total	**100**	**100**
Size of Employer, by Number of Workers		
Fewer than 10	*	11
10 to 99	*	25
100 to 499	*	15
500 to 999	*	6
1,000 or more	99	42
Total	**100**	**100**
Region		
South	37	35
West	21	23
Washington, D.C., metropolitan area	16	2
Midwest	14	22
Northeast	11	18
Total	**100**	**100**
Memorandum:		
Veterans (Percentage of workforce)	22	5
Average Age (Years)	46	42
Number of People in Sample	6,892	163,148

Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey.

* = between zero and 0.5 percent.

Figure 3.

Differences in Education and Occupation Between the Federal and Private-Sector Workforces



Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey.

a. Corresponds to the occupational categories "Professional" and "Management, business, and financial" listed in Table 1. About 65 percent of the workers in those occupations have at least a bachelor's degree, compared with 17 percent of the workers in other occupations.

other 84 percent of federal workers—about 1.8 million people—are located throughout the country in roughly similar proportions to workers in the private sector.

The attributes of the federal workforce are more like those of private-sector workers at large firms than those of workers at small firms, because both large firms and federal agencies tend to require a workforce that is more specialized and educated than small firms do. (In this analysis, small firms are those with fewer than 1,000 employees, and large firms are those with 1,000 or more employees.) Many federal employees have expertise in specific tasks, as over 95 percent of them work in agencies that divide tasks among more than 100 occupations. That degree of specialization is not possible for small employers. In addition, only 31 percent of workers at small firms have at least a bachelor's degree, whereas the proportion of workers with that level of education is greater at large firms (41 percent).

CBO's Approach to Analyzing Compensation for Federal and Private-Sector Employees

How would the federal government's compensation costs differ if the average cost of employing federal workers was the same as that of employing workers with certain similar observable characteristics in the private sector? To address that question, CBO examined average compensation costs for employees in the federal government and the private sector, accounting for differences in those characteristics. The comparison between the two sectors is based on the cost that an employer incurs in providing compensation, including wages and salaries, a share of health insurance premiums, retirement benefits, and payroll taxes (which fund government programs such as Social Security and Medicare).

CBO measured the cost of benefits provided to retirees as the present value of future obligations—that is, as a single number that expresses a flow of current and future payments in terms of an equivalent lump sum paid today. Such benefits are not necessarily paid by the employer in the year that someone works. In particular, retirement benefits for federal workers are recorded as federal spending when someone receives those benefits during retirement.

In both the federal government and the private sector, compensation may depend on a number of factors that can be observed and measured. CBO sought to account for differences in those factors—education, occupation, years of work experience, geographic location (region of the country and urban or rural location), size of employer, veteran status, and certain demographic characteristics (age, sex, race, ethnicity, marital status, immigration status, and citizenship). That approach produces a comparison between the average compensation of federal workers and the average compensation of private-sector workers who have certain similar observable attributes. Because education plays a particularly large role in determining compensation, CBO reports its results for five levels of educational attainment: high school diploma or less, some college, bachelor's degree, master's degree, and doctorate or professional degree.

People's compensation is also affected by many characteristics that are not easy to observe or measure, such as their natural ability, personal motivation, and effort. The degree to which federal and private-sector employees may differ with regard to those characteristics is much

harder to quantify, and no adjustments were made for those attributes in this analysis.

Comparison of Wages in the Federal Government and the Private Sector

Using data from the Current Population Survey (CPS) and the analytic approach described above, CBO compared average hourly wages for federal civilian workers, by the highest level of education they achieved, with average hourly wages for private-sector workers who have certain similar observable traits that affect wages. CBO also compared the range between low and high wages for federal workers with the wage range for similar workers in the private sector.

Average Wages

By CBO's estimate, the extent to which hourly wages differed for federal employees and private-sector employees with certain similar observable traits during the 2011–2015 period varied greatly according to workers' educational attainment. The extent of that variation is evident in comparisons of the differences in wages for the least educated workers, workers with a bachelor's degree (the most common level of education in the federal workforce), and the most educated workers:

- Federal employees with no more than a high school diploma earned 34 percent more per hour, on average, than private-sector employees with the same level of education (see Table 2).
- Federal employees whose highest level of education was a bachelor's degree—about one-third of the federal workforce—earned roughly 5 percent more per hour, on average, than similar workers in the private sector.
- Federal workers with a doctorate or professional degree earned 24 percent less per hour, on average, than similar workers in the private sector.

On average, for employees at all education levels, wages were 3 percent higher for workers in the federal government than for private-sector workers with certain similar observable characteristics, CBO estimates. Thus, the federal government would have reduced its spending on wages by 3 percent if it had decreased the pay of its less educated employees and increased the pay of its more educated employees to match the wages of their private-sector counterparts.

If CBO had not structured this analysis to compare workers with similar observable traits, the difference in average wages between the two sectors would have been much larger. Comparing federal and private-sector employees with similar educational attainment was the most important element, for two reasons: Highly educated workers tend to earn much higher wages than less educated workers, and federal employees have more education, on average, than employees in the private sector. Accounting for differences in some of the other characteristics was also important because federal employees tend to work in higher-paying occupations and to have more years of work experience, which also tend to be associated with higher wages. Finally, employees of large firms tend to earn more per hour than employees of small firms, and federal employees are more than twice as likely as private-sector employees to work for entities that employ at least 1,000 people. Besides accounting for differences in those characteristics, CBO compared federal workers with private-sector workers who had similar demographic traits, but that adjustment did not have much effect on the difference between average federal and private-sector wages.

The large size of federal agencies does not necessarily imply that federal workers would receive the higher wages typical at large firms if they moved to the private sector. On the one hand, jobs are likely to be more specialized in the federal government and at large private firms than they are at smaller firms, so large private-sector employers might value the specialized skills of federal workers. That possibility suggests that accounting for the size of the employer leads to a more meaningful comparison of wages. On the other hand, the higher wages paid by large private firms may not reflect pay for skills that are transferable between the federal and private sectors, so adjusting for the employer's size could understate the difference between average federal and private-sector wages for workers with similar traits. If adjustments for the employer's size are not made, the difference between average federal and private-sector wages for all workers rises from 3 percent to 10 percent, and similar changes occur in the differences for workers at each level of education.

Differences between the average wages of federal and private-sector employees with the same measured traits could reflect the effects of personal characteristics that cannot be measured, differences in the way that the federal government and the private sector determine pay,

Table 2.

Federal and Private-Sector Wages, by Workers' Educational Attainment

	Average Wages (2015 dollars per hour)		Percentage Difference Between Averages
	Federal Government	Private Sector[a]	
High School Diploma or Less	29.60	22.10	34
Some College	32.10	26.30	22
Bachelor's Degree	39.50	37.60	5
Master's Degree	45.00	48.20	-7
Professional Degree or Doctorate	51.90	68.00	-24
All Levels of Education	38.30	37.20	3

Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey.

Wages are measured as an average hourly wage rate and include overtime pay, tips, commissions, and bonuses.

a. Average wages for private-sector workers who resemble federal workers in occupation, years of work experience, and certain other observable characteristics that are likely to affect wages.

or a combination of those factors. The data do not allow CBO to gauge the degree to which each of those factors affects differences in average wages between the sectors.

The findings of CBO's analysis vary from the results of other studies of public- and private-sector wages. That variation is largely attributable to differences in analytic methods. The distinction between those methods and the relationship of CBO's analysis to previous research are discussed at length in a CBO working paper from 2012.[4]

To address the question of how the government's costs for wages and salaries would change if federal workers cost the same amount to employ as similar private-sector workers, CBO focused on differences in *average* wages, which are closely tied to total government spending for the pay of federal employees. Other studies that found larger differences between federal and private-sector pay used a different measure of wages.[5] However, their measure overstates the differences between the cost of employing federal workers and similar private-sector workers because of the way the measure accounts for the difference in the dispersion of wages (the range from low to high) between those groups.

Besides the use of averages, another key feature of CBO's approach was comparing workers with similar characteristics, such as education, experience, and occupation. Other research that has compared the average pay of federal and private-sector workers who have similar jobs has found that the average salary for federal employees is much lower than the average for private-sector workers in comparable jobs.[6] However, by focusing the comparisons on specific, detailed jobs, that research may have ended

4. Justin Falk, *Comparing Wages in the Federal Government and the Private Sector*, Working Paper 2012-3 (Congressional Budget Office, January 2012), Section II, www.cbo.gov/publication/42922. That paper addresses CBO's analysis of federal wages from 2005 through 2010, but the points remain relevant for the 2011–2015 period analyzed in this testimony. The relationship between CBO's analysis and previous research is also discussed in Government Accountability Office, *Federal Workers: Results of Studies on Federal Pay Varied Due to Differing Methodologies*, GAO-12-564 (June 2012), www.gao.gov/products/GAO-12-564; and David H. Bradley, *Comparing Compensation for Federal and Private-Sector Workers: An Overview*, Report for Congress R42636 (Congressional Research Service, July 30, 2012).

5. See Rachel Greszler and James Sherk, *Why It Is Time to Reform Compensation for Federal Employees*, Backgrounder 3139 on Labor (Heritage Foundation Center for Data Analysis, July 2016), http://tinyurl.com/zf25ymg; and Andrew Biggs and Jason Richwine, *Comparing Federal and Private Sector Compensation,* Economic Policy Working Paper 2011-02 (American Enterprise Institute, June 2011), www.aei.org/publication/comparing-federal-and-private-sector-compensation.

6. Federal Salary Council, *Level of Comparability Payments for January 2018* (December 2016), https://go.usa.gov/xXCGm.

up comparing federal workers with private-sector workers who have more experience.[7]

The Distribution of Wages

In addition to looking at average wages, CBO examined the distribution of wages for federal workers and for private-sector workers with certain similar observable characteristics in each category of educational attainment. It then compared wages in the two sectors at the 10th, 25th, 50th (the median), 75th, and 90th percentiles of those distributions.[8] Among employees with no more than a bachelor's degree, low-wage workers (those at the 10th and 25th percentiles) earned more in the federal government than in the private sector. By contrast, among employees with at least a bachelor's degree, high-wage workers (those at the 90th percentile) earned less in the federal government than in the private sector. (That is also the case for workers at the 75th percentile of those who have a professional degree or doctorate. Among employees whose education culminated in a bachelor's degree, workers at the 75th percentile earned more in the federal government than in the private sector.)

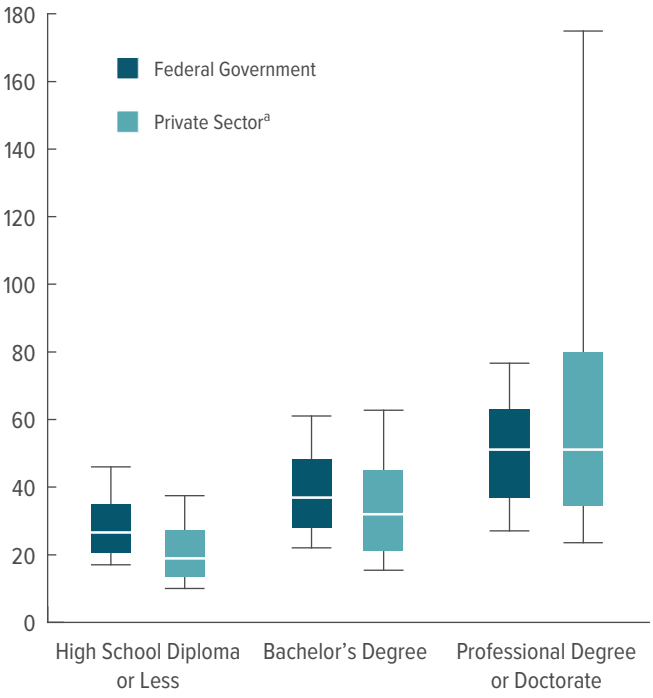
Both high and low wages tend to be less prevalent in the federal government than in the private sector, so the range between those wages—the dispersion of wages—tends to be narrower for federal employees. For example, as measured by the range from the 10th percentile to the 90th percentile, the dispersion of wages was smaller for federal employees with at least a bachelor's degree than for similar private-sector employees. That difference was especially evident for people with a professional degree or doctorate, mostly because the 90th percentile of wages is much lower for federal employees than for private-sector workers with the same level of education (see Figure 4). In fact, the large differences between the high percentiles of those two wage distributions push the average wage of federal employees substantially below the average wage for their private-sector counterparts. In contrast, the 50th percentiles of those distributions are about the same. The prevalence of higher wages also pushes the average wage above the 50th percentile for workers with other levels of education, particularly in the private sector. One implication is that about 50 percent of the federal workers whose education culminated in a bachelor's degree earned less than the average wage of their private-sector counterparts, even though the average wage was higher among the federal workers.

The dispersion of wages also tends to differ between federal employees and their private-sector counterparts when the workers are grouped by occupation instead of educational attainment. For example, the range from the 10th percentile to the 90th percentile was significantly

Figure 4.

Dispersion of Federal and Private-Sector Wages, by Workers' Educational Attainment

Wages, 2015 Dollars per Hour



Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey.

The horizontal line in the middle of each shaded box indicates the median (50th percentile) wage; the top and bottom of the box mark the 75th and 25th percentiles, respectively; and the whiskers above and below the box mark the 90th and 10th percentiles.

a. Wages for private-sector workers who resemble federal workers in occupation, years of work experience, and certain other observable characteristics that are likely to affect wages.

7. See Melissa Famulari, "What's in a Name? Title Inflation in the Federal Government" (draft, University of Texas at Austin, August 2002), www.econweb.ucsd.edu/~mfamular/pdfs/FederalPrivatepay.pdf (182 KB).

8. For details about how CBO constructed the wage distributions, see Justin Falk, *Comparing Wages in the Federal Government and the Private Sector*, Working Paper 2012-3 (Congressional Budget Office, January 2012), Section V, www.cbo.gov/publication/42922.

narrower for federal managers than for similar private-sector managers. In that regard, those distributions differed by about the same amount as the distributions for workers with at least a bachelor's degree.

The narrower dispersion of wages among federal workers may reflect the constraints of federal pay systems, which limit the pay of managers and make it harder for managers to reward the highest performers or to limit the compensation of the lowest performers. The highest salaries under federal pay schedules are substantially lower than the average salaries for most executive positions in the private sector.[9] Federal pay systems also limit the number of workers with low wages, because most federal workers compensated under pay schedules move to progressively higher pay levels as they become eligible for those levels on the basis of their years of federal employment. However, federal pay systems also include tools, such as promotions and bonuses, that managers can use to reward some top performers.

Comparison of Benefits in the Federal Government and the Private Sector

The federal government and most large private employers provide various forms of noncash compensation, such as retirement benefits, health insurance, and paid leave. The cost of providing those benefits varies greatly among private-sector employers as well as between the federal government and the private sector. Smaller private employers generally offer less-generous health insurance and other benefits; some do not offer such benefits at all. However, almost all employers are required to pay various payroll taxes to fund all or part of the benefits that workers or retirees receive through the Social Security, Medicare, unemployment insurance, and workers' compensation programs.

In both the federal government and the private sector, the cost of some benefits, such as retirement benefits and paid leave, is based largely on the wages that employees receive. Thus, the factors that determine an employee's wages—such as education, occupation, and experience—will also influence the cost that an employer incurs to provide those benefits. For example, workers with more education tend to receive more expensive benefits as well as higher wages. The cost of other benefits, by contrast, is not directly affected by the wages that employees receive. In particular, the cost of providing health insurance for federal workers depends directly on the insurance plan chosen and on whether an employee has single, single-plus-one, or family coverage (although that cost may be indirectly affected by the employee's wages if higher-income workers tend to choose more expensive insurance plans).

CBO compared the cost of the benefits provided to federal and to private-sector employees, accounting for the same differences in workers' characteristics that were used to analyze wages. For consistency with the measure of hourly wages, the cost of benefits was measured on an hourly basis by dividing estimates of the annual cost that an employer incurred to provide those benefits by the number of hours that an employee worked during the year.

As with wages, differences in the cost of benefits in the federal government and the private sector varied by employees' highest level of education (see Table 3). For example, CBO estimates that, relative to costs for similar workers in the private sector, benefit costs were about:

- 93 percent higher, on average, for federal workers with a high school diploma or less education;
- 52 percent higher, on average, for federal workers whose highest level of education was a bachelor's degree; and
- Roughly the same, on average, for federal workers with a professional degree or doctorate.[10]

On average for workers at all education levels, benefits for federal employees cost about $26 per hour worked, whereas benefits for private-sector employees with certain similar observable characteristics cost $18, CBO estimates. Thus, benefits for federal workers cost 47 percent more

9. Congressional Budget Office, *Comparing the Pay and Benefits of Federal and Nonfederal Executives* (November 1999), www.cbo.gov/publication/12015. That report compares pay in 1998. Since then, the highest salaries in the federal pay schedules have risen to $207,800 for the Executive Schedule and $187,000 for the Senior Executive Service. Those amounts remain below the average salaries for most executive positions at large private-sector firms even in 1998.

10. CBO estimates that benefits for federal workers with a professional degree or doctorate are 3 percent lower, on average, than benefits for private-sector workers with similar observable characteristics. However, that estimate is subject to considerable uncertainty because of the small number of workers in the data who have that level of education.

Table 3.

Federal and Private-Sector Benefits, by Workers' Educational Attainment

	Average Benefits (2015 dollars per hour)		Percentage Difference Between Averages
	Federal Government	Private Sector[a]	
High School Diploma or Less	21.30	11.10	93
Some College	24.20	13.50	80
Bachelor's Degree	27.50	18.10	52
Master's Degree	29.80	22.90	30
Professional Degree or Doctorate	29.70	30.70	-3
All Levels of Education	26.50	18.00	47

Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey, the Office of Personnel Management, and the National Compensation Survey.

Benefits are measured as the average cost, per hour worked, that an employer incurs in providing noncash compensation. The average benefits shown here are for workers at institutions that employ at least 1,000 people.

a. Average benefits for private-sector workers who resemble federal workers in occupation, years of work experience, and certain other observable characteristics that are likely to affect benefits.

per hour worked, on average, than benefits for private-sector workers with similar observable attributes. Benefits also constituted a larger share of compensation for federal workers, accounting for 41 percent of the cost of total compensation, compared with 32 percent for workers in the private sector.

Most of the higher benefit costs incurred by the federal government stem from differences in retirement benefits. The federal government provides retirement benefits to its workers through both a defined benefit plan and a defined contribution plan, whereas many large private-sector employers have replaced defined benefit plans with defined contribution plans.[11] The federal government also provides subsidized health insurance to qualified retirees, an arrangement that has become much less common in the private sector. As a result, deferred compensation accounts for a greater portion of total compensation in the federal government than in the private sector, on average. That difference could affect the types of workers who choose federal employment over private-sector employment. Federal pension and health care benefits for retirees are likely to attract workers who plan to stay with the same employer for many years, because the value of those benefits rises sharply if an employee waits to leave federal service until he or she is eligible for an immediate pension (at which point the employee is generally also eligible to receive federal health care benefits in retirement).

Comparisons of benefits by other researchers have not used data that allow federal employees to be compared with private-sector employees who have similar job-related attributes.[12] Those comparisons have found bigger differences between average federal and private-sector benefits than CBO finds. However, CBO's analysis indicates that a large portion of those bigger differences is attributable to the fact that federal workers have more years of education and experience, on average, than private-sector workers do.

CBO's estimates of differences in benefits between the two sectors are more uncertain than its estimates of differences in wages. That greater uncertainty reflects the complexity of measuring benefits and the extrapolations

11. Defined benefit plans provide retirement income that is based on fixed formulas, and the amount of that income is usually determined by an employee's salary history and years of service. In contrast, the amount of retirement income provided by a defined contribution plan, such as a 401(k) account, depends on the performance of the account's investments as well as on the amount of contributions made by the employer and employee.

12. For details, see Justin Falk, *Comparing Benefits and Total Compensation in the Federal Government and the Private Sector,* Working Paper 2012-4 (Congressional Budget Office, January 2012), Section II, www.cbo.gov/publication/42923.

that were necessary to integrate data sets from various sources.

Comparison of Total Compensation in the Federal Government and the Private Sector

CBO combined its analyses of wages and benefits to assess differences between the federal government and the private sector in total compensation for workers with certain similar observable characteristics:

- Among workers with a high school diploma or less education, total compensation costs were 53 percent higher, on average, for federal employees than for similar private-sector employees (see Table 4).
- Among workers whose education ended in a bachelor's degree, the cost of total compensation averaged 21 percent more for federal workers than for similar workers in the private sector.
- Among workers with a professional degree or doctorate, by contrast, total compensation costs were 18 percent lower, on average, for federal employees than for private-sector employees with similar attributes.

For workers with a bachelor's degree or less, the cost of total compensation averaged about $60 per hour worked for federal employees, compared with about $46 per hour worked for employees in the private sector with certain similar observable characteristics. In contrast, the cost of total compensation averaged about $77 per hour worked for federal employees with a master's degree, professional degree, or doctorate, which is about $3 less than the average for their private-sector counterparts. Overall, total compensation was about 17 percent higher, on average, for federal workers than for similar private-sector workers, indicating that the government spent about 17 percent more on total compensation than it would have if it provided its employees compensation equal to that of their private-sector counterparts.

In part because both federal and private-sector workers may value wages differently than benefits, comparisons of total compensation are an incomplete indicator of the government's ability to recruit and retain a qualified workforce. In this analysis, benefits are measured in terms of the cost that employers incur in providing them, which might not match the value that employees place on benefits. An implication is that differences in benefits might not compensate for apparently countervailing differences in wages, even if the measured differences in benefits and wages are similar. On the one hand, workers tend to pay less income tax on compensation that takes the form of benefits than they do on wages, which enhances the value of benefits. On the other hand, some recent research indicates that workers are willing to pay only a small portion of the cost of funding an increase in pension benefits, which suggests that they value wages more highly than pension benefits.[13] A broader assessment of how changes in the amount or composition of total compensation would affect the government's ability to recruit and retain a qualified workforce is beyond the scope of this analysis.

Comparison With CBO's Analysis of the 2005–2010 Period

CBO's 2012 report on differences between the wages, benefits, and total compensation of federal and private-sector workers covered the years from 2005 through 2010. This testimony, which used analytic methods that are broadly similar, covered the period from 2011 to 2015. Compared with the previous analysis, in this analysis the differences in compensation were substantially larger for less educated workers, smaller for workers with master's degrees, and changed little for workers overall.

Changes in the Comparison of Wages

The differences in average wages by educational attainment primarily changed because wages grew more quickly among less educated workers in the federal government than among their counterparts in the private sector and because CBO adjusted its approach to determining who is a federal employee. Differences in wages were also affected by reductions in across-the-board increases to federal salaries, a slowdown in federal hiring, and a temporary reduction in the number of hours worked by federal employees.

Changes in the Comparison of Wages by Level of Education. At all five levels of educational attainment, the differences between the wages paid by the federal government and the private sector were larger during the 2011–2015 period than they were during the

13. Maria D. Fitzpatrick, "How Much Are Public School Teachers Willing to Pay for Their Retirement Benefits?" *American Economic Journal: Economic Policy*, vol. 7, no. 4 (November 2015), pp. 165–188, http://dx.doi.org/10.1257/pol.20140087. That study includes a discussion of why defined benefit pensions are still common in the public sector even though the value that workers place on them appears to be lower than their cost.

Table 4.

Federal and Private-Sector Total Compensation, by Workers' Educational Attainment

	Average Total Compensation (2015 dollars per hour)		Percentage Difference Between Averages
	Federal Government	Private Sector[a]	
High School Diploma or Less	50.90	33.40	53
Some College	56.30	40.40	39
Bachelor's Degree	67.00	55.20	21
Master's Degree	74.80	70.90	5
Professional Degree or Doctorate	81.70	99.80	-18
All Levels of Education	64.80	55.30	17

Source: Congressional Budget Office, using data for 2011 through 2015 from the March Current Population Survey, the Office of Personnel Management, and the National Compensation Survey.

Total compensation consists of wages and benefits. The average compensation shown here is for workers at institutions that employ at least 1,000 people. Because a broader sample was used to compare wages than to compare benefits, the numbers shown here for total compensation may not equal the sum of the numbers for wages and benefits separately.

a. Average total compensation for private-sector workers who resemble federal workers in occupation, years of work experience, and certain other observable characteristics that are likely to affect compensation.

2005–2010 period. The average wages of federal workers with a bachelor's degree or less exceeded the average wages of their private-sector counterparts by more between 2011 and 2015 than between 2005 and 2010 (see Table 5). Conversely, the average wages of federal workers with more than a bachelor's degree fell further short of their counterparts' in the private sector between 2011 and 2015 than between 2005 and 2010. However, the change for more educated workers is small and imprecisely measured.

One reason for the larger differences in wages in the 2011–2015 period is that wages grew more quickly among less educated workers in the federal government than among their counterparts in the private sector. In particular, wages for federal workers who attended college but did not earn a bachelor's degree grew by about 11 percent between the 2005–2010 period and the 2011–2015 period. In contrast, wages for private-sector workers with similar amounts of education grew by about 7 percent between the two periods. (Those growth rates are not adjusted for general changes in the cost of labor.) Those trends increased the difference between the average wages of those workers from 15 percent to 19 percent. For the same reason, the difference between the average wages of federal workers and their private-sector counterparts was boosted from 21 percent to 24 percent among workers with no more than a high school diploma. (In order to isolate the effect of different rates of wage growth, the estimates in this paragraph do not reflect CBO's adjustment to its approach to determining who is a federal employee.)

Another reason that CBO estimated larger differences in wages for less educated workers is that the agency adjusted its approach to determining who is a federal employee. CBO primarily relies on data from the CPS in its analysis of wages because the CPS includes information on federal employees and workers in the private sector. However, data on federal employees compiled by the Office of Personnel Management indicate that the CPS substantially overstates the number of low-wage workers in the federal government, so CBO adjusted the data accordingly. Because most low-wage workers do not have a bachelor's degree and tend to have lower wages than other federal employees with the same level of education, the adjustment substantially increased the average wages of federal workers with less than a bachelor's degree. As a result of that adjustment, the estimated differences between the average wages of federal and private-sector workers grew from 24 percent to 34 percent among workers with no more than a high school diploma and from 19 percent to 22 percent among workers with some college education.

Table 5.

Percentage Differences Between Federal and Private-Sector Compensation, by Analytic Period

	2005 Through 2010			2011 Through 2015		
	Wages	Benefits	Total Compensation	Wages	Benefits	Total Compensation
High School Diploma or Less	21	72	36	34	93	53
Some College	15	71	32	22	80	39
Bachelor's Degree	2	46	15	5	52	21
Master's Degree	-5	36	8	-7	30	5
Professional Degree or Doctorate	-23	2	-18	-24	-3	-18
All Levels of Education	2	48	16	3	47	17

Source: Congressional Budget Office, using data for 2005 through 2015 from the March Current Population Survey, the Office of Personnel Management, and the National Compensation Survey.

Differences are based on average compensation for private-sector workers who resemble federal workers in occupation, years of work experience, and certain other observable characteristics that are likely to affect compensation.

Wages are measured as an average hourly wage rate and include overtime pay, tips, commissions, and bonuses.

Benefits and total compensation are measured as the average cost, per hour worked, that an employer incurs in providing noncash compensation. The differences in averages shown here are for workers at institutions that employ at least 1,000 people.

The approach that CBO used to compare compensation from 2011 through 2015 is broadly similar to the approach the agency used to compare compensation from 2005 through 2010 but differs in several respects. See the text for details.

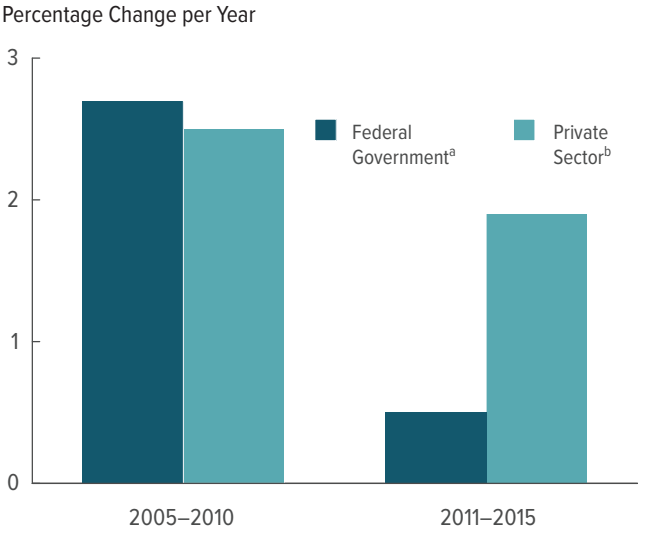
Changes in the Comparison of Average Wages. On average for workers at all levels of education, the difference in wages between the federal and private sectors changed little between the two periods because reductions in across-the-board salary increases for federal employees were offset by other factors. The Federal Employees Pay Comparability Act of 1990 specifies that the salaries of most federal employees be adjusted annually on the basis of changes in the salaries of private-sector workers. From 2005 through 2010, those changes averaged 2.7 percent, which was similar to the increase in the salaries of private-sector workers during that period as measured by the employment cost index compiled by the Bureau of Labor Statistics (see Figure 5). From 2011 through 2015, however, policymakers chose to implement smaller increases—averaging less than half a percent—for federal employees. In contrast, salaries of private-sector workers grew by an average of 1.9 percent during those years. In addition to across-the-board pay increases, federal employees can earn pay raises based on their seniority and merit, but those raises did not expand to offset the reduction in the across-the-board increases over the 2011–2015 period (see Figure 6).[14] Thus, the lower across-the-board pay increases probably reduced the wages of federal employees relative to the wages of their private-sector counterparts by roughly 7 percent by 2015 and by an average of 4 percent over the 2011–2015 period. The lower pay increases—and higher pension contributions mandated by policymakers—are evident in the average wage of newly hired federal employees (see Box 1).

The reduction in across-the-board salary increases was partially offset by a decline in federal hiring. Hiring fell from around 215,000 workers per year over the 2006–2010 period to around 165,000 workers per year between 2011 and 2015. That drop in hiring increased

14. To further investigate the effects that the elimination of general pay increases from 2011 through 2013 had on the difference in average wages, CBO compared the average wage differential between federal and private-sector employees during 2014 and 2015. By limiting the sample to the period after the pay freeze, CBO found that the average federal wage exceeded the average private-sector wage by 1 percent rather than 3 percent for the entire 2011–2015 period.

Figure 5.

Changes in Average Salaries, by Sector



Source: Congressional Budget Office, using data from the Office of Personnel Management and the Bureau of Labor Statistics.

The salaries that the changes in this figure are based on have not been converted to 2015 dollars.

a. Consists of across-the-board increases and changes in locality payments for workers on the General Schedule, as well as general market and structural pay adjustments for workers on other pay schedules.

b. The change in the employment cost index for the salaries of workers in private industry.

the average federal wage over what it would have been otherwise, because the average salary of recently hired federal employees is substantially lower than that of federal employees overall.

The reduction in across-the-board salary increases was also offset by the increase in federal hourly wages caused by federal employees' working fewer hours in the 2011–2015 period than they had in the 2005–2010 period. In particular, salaried federal workers reported fewer hours of work in 2013, the year in which many federal employees were not allowed to work for the first 16 days of October.

Changes in the Comparisons of Benefits and Total Compensation

As with wages, the cost of federal benefits exceeded the cost of private-sector benefits to a greater extent over the 2011–2015 period than over the 2005–2010 period for workers with a bachelor's degree or less. Conversely, for workers with a master's degree, the amount by which the cost of federal benefits exceeded the cost of private-sector benefits declined between the two periods. And among workers with a professional degree or doctorate, the cost of federal benefits was less than the cost of private-sector benefits in the 2011–2015 period, whereas federal benefits were more expensive than private-sector benefits in the 2005–2010 period.

Changes in wages are largely responsible for the changes in benefits (because the costs of pensions, paid leave, and legally required benefits are closely tied to wages), but increases in the cost of health insurance also played a role. The amount employers contributed to their workers' health insurance grew more than wages in both sectors, but that growth was more concentrated among workers with higher earnings in the private sector, many of whom are highly educated. Thus, the differences between the cost of benefits for workers with more education in the federal sector and the private sector changed by a greater extent than the changes in wages alone would suggest.

The differences in the total compensation of federal workers and their private-sector counterparts with the same educational attainment changed between the 2005–2010 period and the 2011–2015 period as the differences in wages and benefits between those two groups changed. In some instances, the changes in the differences in total compensation between the two groups were more pronounced than the changes in the differences in wages or benefits. The additional growth in total compensation stemmed from more rapid growth in benefits than in wages between the 2005–2010 and 2011–2015 periods, which made the difference in benefits a larger share of the difference in total compensation. For example, among workers with a bachelor's degree, the difference in total compensation grew by 6 percentage points over the two periods, although the differences in its two components, wages and benefits, grew by smaller amounts.

Box 1.

Changes in Compensation for Newly Hired Federal Employees

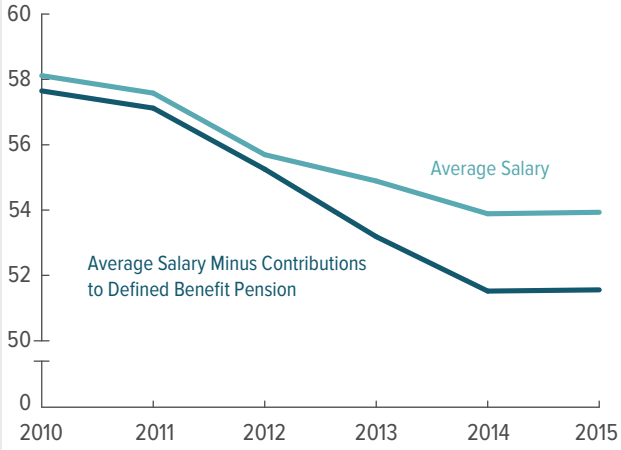
Adjusted for private-sector wage growth, the compensation the federal government provides to newly hired employees decreased by about 11 percent between 2010 (the last year examined in the Congressional Budget Office's previous report on compensation) and 2015 because lawmakers limited across-the-board increases to wages and raised the amount that new employees contribute to the defined benefit pension (see the figure).[1] Over the 2011–2015 period examined in this testimony, those policies had a smaller effect on average compensation for all federal employees than for newly hired ones. CBO expects that the changes will further reduce the pay of the federal workforce over time as more employees are hired and as employees hired before the changes were put in place retire or leave the federal government. The changes also may hamper the government's ability to recruit a highly qualified workforce—especially among workers whose jobs require advanced training—but analysis of that issue is beyond the scope of this testimony.

From 2010 through 2015, salaries paid to new federal employees declined by about 7 percent after adjusting for general changes in the cost of labor. Policymakers limited across-the-board wage increases to a total of 2 percent, which in turn constrained the growth in the average salary of new employees to roughly the same percentage. That is, without adjusting for general changes in the cost of labor, the average salary of new employees in 2015 was roughly 2 percent more than the average salary of similar new employees in 2010. Over the same six-year period, the employment cost index for wages and salaries of workers in private industry—a measure of changes in private-sector pay that the Bureau of Labor Statistics adjusts so that the composition of the workforce is similar from one quarter to the next—grew by about 10 percent. Thus, adjusted for general changes in the cost of labor, starting federal salaries fell by about 7 percent, on average, between 2010 and 2015.

Lawmakers recently increased by 3.6 percentage points the portion of new federal employees' salaries that those employees must contribute to their defined benefit pensions. First, the Middle Class Tax Relief and Job Creation Act of 2012 increased the contribution rate from 0.8 percent to 3.1 percent for most employees hired after December 31, 2012. Then, the Bipartisan Budget Act of 2013 further increased the contribution rate to 4.4 percent for most employees hired after December 31, 2013. After that rise in contributions was subtracted from compensation, the starting pay of federal employees fell by an additional 4 percent between 2010 and 2015. Thus, in total, average federal salaries for newly hired employees, after taking into account contributions to defined benefit pensions and general changes in the cost of labor, fell by about 11 percent between 2010 and 2015. Because newly hired employees constitute a small share of the federal workforce, the change had only a minor effect on average compensation for all federal employees. However, that effect is expected to grow over time as more employees are hired, thereby reducing the difference in compensation between the federal government and the private sector.

The increase in employees' contributions to their defined benefit pensions does not factor into the comparisons of benefits presented in this testimony because workers first hired after 2012 had not yet accumulated the five years of service needed to receive the defined benefit pension.[2] If they leave federal employment, most workers with fewer than five years of service choose to have their contributions refunded to them at that time. However, once those workers have served long enough to receive an annuity, the cost of compensating them will be less than it would have been under a lower contribution rate because the additional contributions from employees will reduce the portion of the pension payments funded by the government.

Starting Pay of Federal Employees, by Year Hired



Source: Congressional Budget Office, using data from the Office of Personnel Management.

Average salaries are adjusted for changes over time in newly hired federal employees' educations, occupations, and certain other observable characteristics likely to affect wages.

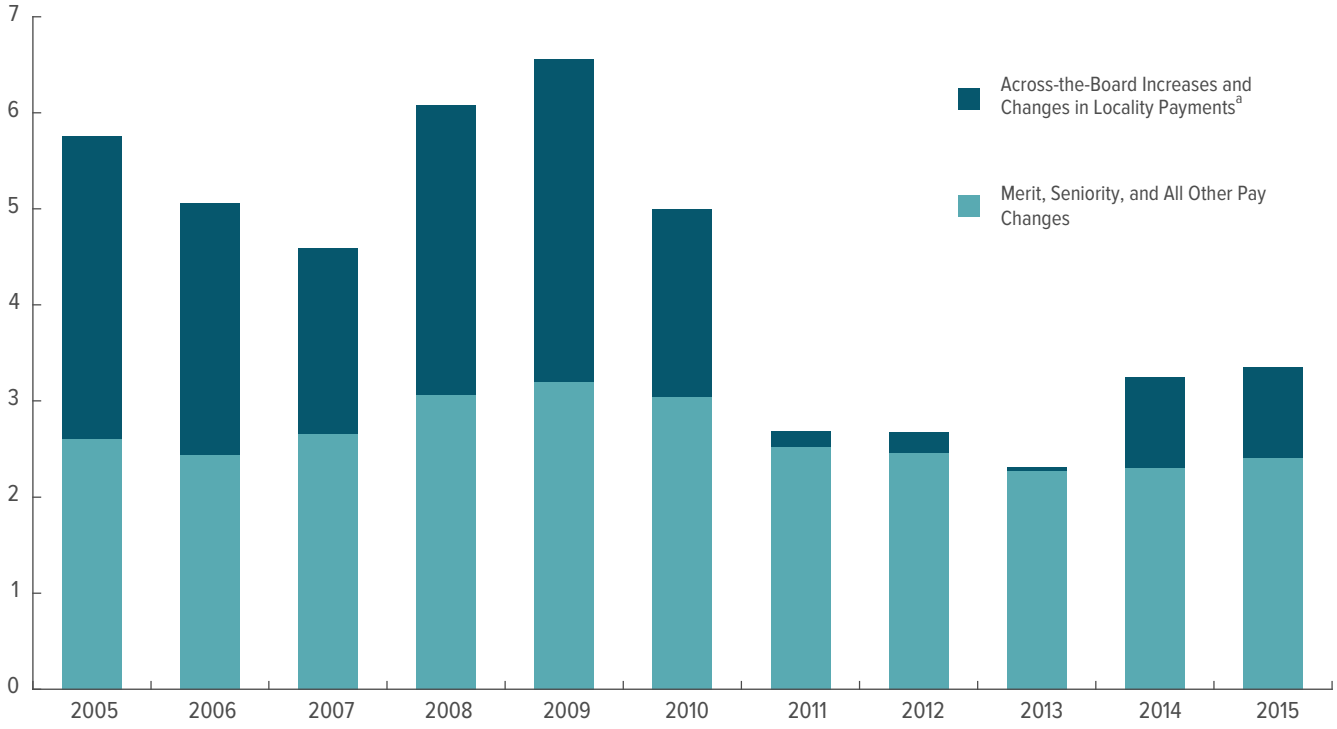
1. Congressional Budget Office, *Comparing the Compensation of Federal and Private-Sector Employees* (January 2012), www.cbo.gov/publication/42921.

2. This approach differs from the budgetary treatment of employees' contributions to the defined benefit pensions; those contributions are categorized as revenue when they are withheld from employees' pay. Under that treatment, the savings would still be a small fraction of the cost of total compensation because most federal employees were hired before 2013.

Figure 6.

Changes in Average Salaries for Federal Employees, Including Changes Based on Merit and Seniority

Percent



Source: Congressional Budget Office, using data from the Office of Personnel Management.

The salaries that the changes in this figure are based on have not been converted to 2015 dollars.

In this figure, the composition of the workforce changes from year to year, and the change in salary reflects, in part, additional work experience.

a. Also includes general market and structural pay adjustments for workers who are not on the General Schedule.

This testimony reproduces the summary and main text of *Comparing the Compensation of Federal and Private-Sector Employees*, 2011 to 2015, a report written by Justin Falk that CBO released in April 2017. In keeping with CBO's mandate to provide objective, impartial analysis, the testimony and report contain no recommendations.

Robert Arnold, Elizabeth Bass, Jordan Berne, Holly Boras, William Carrington, Heidi Golding, Jeffrey Holland, Nadia Karamcheva, Kim Kowalewski, Amber Marcellino, Carla Tighe Murray, Daniel Ready, Felix Reichling, Chayim Rosito, Stephanie Ruiz, John Seliski, and David Torregrosa provided comments on the report on which this testimony is based. Joseph Kile and Molly Dahl supervised that work, and Wendy Edelberg, Mark Hadley, and Jeffrey Kling reviewed it.

Christine Bogusz edited the testimony, and Jorge Salazar prepared it for publication. An electronic version is available on CBO's website (www.cbo.gov/publication/52707).

Joseph Kile

Joseph Kile is Assistant Director for Microeconomic Studies at the Congressional Budget Office. For the past 12 years, he has directed a broad portfolio of economic analysis relevant to federal budget issues and Congressional decision making. That portfolio includes energy and natural resources, transportation and infrastructure, and labor markets and income security. Before joining CBO in 2005, Dr. Kile held various positions at the Government Accountability Office where, during his 16-year tenure, he was an author or coauthor of over 50 reports and testimonies for the Congress. He has also served as an adjunct faculty member at Georgetown University's McCourt School of Public Policy. Dr. Kile earned a Ph.D. in economics from the University of Wisconsin and an undergraduate degree in mathematics and economics from Saint Olaf College (Minnesota).