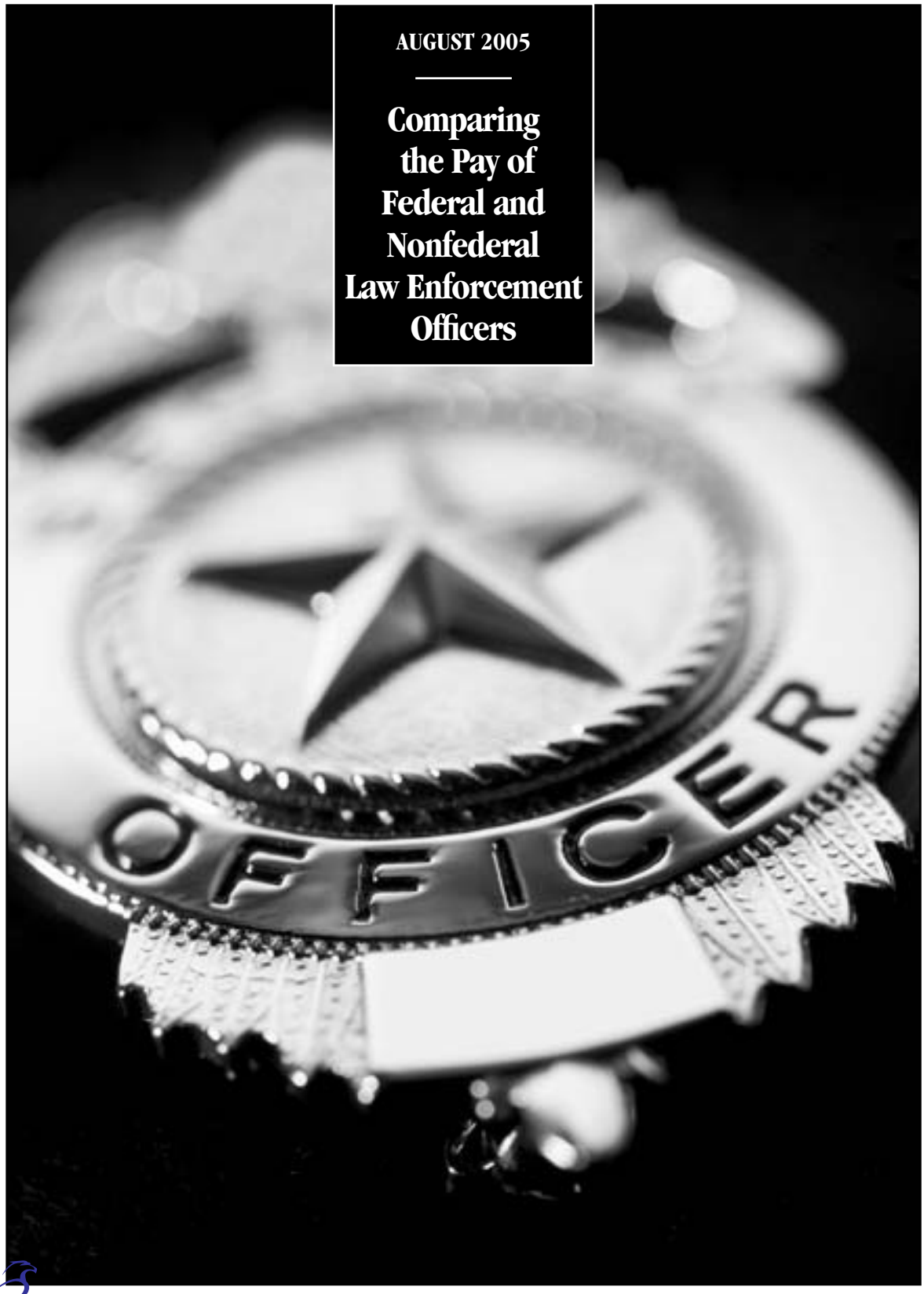
CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

A
CBO
PAPER

AUGUST 2005

Comparing the Pay of Federal and Nonfederal Law Enforcement Officers



© StockDisc

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

A

CBO

PAPER

Comparing the Pay of Federal and Nonfederal Law Enforcement Officers

August 2005

The Congress of the United States ■ Congressional Budget Office

Note

Numbers in the text and tables may not add up to totals because of rounding.

Preface

As lawmakers consider changes in the federal personnel system for law enforcement officers, one issue to be considered is whether the compensation of such personnel across the government is adequate to achieve recruitment and retention goals. Some observers argue that in a number of cities, compensation for federal law enforcement officers is less than that for their state and local counterparts, which may place the federal government at a relative disadvantage in some local labor markets.

This Congressional Budget Office (CBO) paper compares the pay (wages and salaries) of federal law enforcement officers with the pay of nonfederal officers in the national and regional labor markets and in selected federal locality-pay areas. (CBO's analysis excludes comparisons of employment benefits.) The paper was prepared at the request of the Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia of the Senate Homeland Security and Governmental Affairs Committee and the Subcommittee on the Federal Workforce and Agency Organization of the House Committee on Government Reform. In accordance with CBO's mandate to provide impartial analysis, this paper makes no recommendations.

Cary Elliott of CBO's Microeconomic Studies Division wrote the paper under the supervision of Roger Hitchner, Joseph Kile, and David Moore. (Roger Hitchner has since left CBO.) The author received valuable comments and assistance from Molly Dahl, Ellen Hays, Arlene Holen, William Randolph, Ralph Smith, and Sean Sullivan of CBO, as well as Barbara Schwemle of the Congressional Research Service, Kevin Hallock of Cornell University, and Mark Musell, formerly of CBO. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

Leah Mazade edited the paper, and John Skeen proofread it. Angela Z. McCollough prepared early drafts of the manuscript; Maureen Costantino designed the cover and prepared the report for publication. Lenny Skutnik produced the printed copies, and Annette Kalicki and Simone Thomas prepared the electronic version for CBO's Web site (www.cbo.gov).



Douglas Holtz-Eakin
Director

August 2005

CONTENTS

Summary *vii*

Overview of Federal and Nonfederal Law Enforcement Systems *1*
Comparing Federal and Nonfederal Law Enforcement Jobs and Requirements *1*
Comparing Federal and Nonfederal Pay Structures *4*

Pay Comparisons Using the Human Capital Approach *7*

CBO's Analysis *9*
Data *9*
Comparing Unadjusted Earnings *9*
Comparing Individuals' Personal and Job Characteristics *10*
Comparing Adjusted Differentials *12*
Results for Selected Localities *14*
Explaining Differences That Remain After CBO's Adjustments *14*

Appendix: CBO's Analytic Method *17*

Tables

S-1.	Estimated Federal Earnings Differentials as Nationwide Averages After Adjusting for Officers' Personal and Job Characteristics	x
1.	Major Employing Agencies of Federal Law Enforcement Officers, June 2002	4
2.	Number of Federal Law Enforcement Officers in Selected Occupations by State, March 2004	5
3.	Number of Law Enforcement Officers in CBO's Sample by Occupation and Employer	9
4.	Estimated Federal Earnings Differentials by Region Without Adjusting for Law Enforcement Officers' Personal and Job Characteristics	10
5.	Personal and Job Characteristics and Average Earnings of Law Enforcement Officers	11
6.	Estimated Federal Earnings Differentials by Region After Adjusting for Law Enforcement Officers' Personal and Job Characteristics	13
7.	Estimated Federal Earnings Differentials in Selected Large Localities After Adjusting for Officers' Personal and Job Characteristics	15
A-1.	Annual Log Wage Earnings Regressions for Selected Law Enforcement Job Categories	18

Figures

S-1.	Estimated Federal Earnings Differentials for Police Officers in Selected Localities	xi
S-2.	Estimated Federal Earnings Differentials for Detectives and Criminal Investigators in Selected Localities	xii
1.	Duties of Federal Law Enforcement Officers	3

Box

S-1	Analyzing Total Compensation for Law Enforcement Jobs	viii

Summary

The Office of Personnel Management (OPM) estimated in 2004 that roughly 106,000 law enforcement officers were employed in various federal agencies, such as the Department of Homeland Security (DHS), the Federal Bureau of Investigation, and the Federal Bureau of Prisons.[1] The September 2001 terrorist attacks have heightened policymakers' concerns about the federal government's ability to recruit and retain high-quality personnel for those positions. Central to those concerns is the level of federal pay for law enforcement jobs in comparison with that offered by state and local governments, particularly in metropolitan areas where the cost of living is high. This Congressional Budget Office (CBO) analysis compares the pay (wages and salaries) of federal law enforcement officers with the pay of similar nonfederal officers (those employed by state and local—including county —governments).[2] CBO's study was restricted to cash compensation, for which comprehensive data are available. It did not address total compensation—earnings plus benefits. (See Box 1 for a brief discussion of total compensation.)

The federal government competes in various labor markets with state and local governments—and to a lesser extent, those public-sector employers compete with private providers of protective services—for people with law enforcement skills. To compare the pay of federal officers with that of state and local officers, CBO used data from the 2000 decennial census. Its analysis focused on five of the census's classifications of law enforcement jobs: police officers; detectives and criminal investigators; corrections officers (including bailiffs and jailers); police supervisors; and corrections supervisors.[3]

A number of factors may account for observed differences in pay in addition to the pay structure of an officer's employer. Those factors include nonwage employment benefits—for example, contributions by employers for retirement and health insurance; differences in the skills and abilities of the people in law enforcement jobs, important aspects of which are education and previous experience; a particular job's requirements; and individuals' preferences —for instance, whether people are willing to move often, as some federal jobs demand, and how much risk they are willing to tolerate.

CBO used statistical techniques—based on a human capital approach to pay determination—to account for officers' personal and job characteristics that affect their pay. After taking those characteristics into account, CBO found that federal pay tended to be higher than state and local pay when compared on the basis of national averages. Federal police officers, investigators, and corrections officers on average earned more than their state and local counterparts. However, those average results do not take into account possible differences between federal and nonfederal employment benefits. Moreover, the national averages mask important differences among regions and localities. As an example, for police officers in several major metropolitan areas (such as New York and Los Angeles), federal salaries are below the salaries paid by state and local law enforcement agencies.

1. Office of Personnel Management, *Federal Law Enforcement Pay and Benefits: Report to the Congress* (July 2004). That report compared job classifications, pay, and benefits among federal law enforcement officers.

2. CBO's previous pay comparison analyses include *Comparing Federal Salaries with Those in the Private Sector* (July 1997), which used a human capital approach similar to the one employed in this analysis; *Comparing Federal Employee Benefits with Those in the Private Sector* (August 1998); and, most recently, *Comparing the Pay of Federal and Nonprofit Executives: An Update* (July 2003) and *Measuring Differences Between Federal and Private Pay* (November 2002).

3. Private-sector law enforcement officers, such as private security officers and private detectives, were excluded from CBO's analysis since they lack the arrest powers that distinguish federal and state and local officers. However, private employment remains an option for both law enforcement recruits and veteran officers.

Summary Box 1.

Analyzing Total Compensation for Law Enforcement Jobs

The Congressional Budget Office's (CBO's) pay comparison of federal and state and local law enforcement officers focused on cash compensation. Total compensation includes not only earnings from salaries and wages but also the value of employment benefits, such as retirement, health care, and life insurance benefits; holiday and vacation pay; and subsidies for transportation, housing, and uniforms. Benefits are a significant part of employees' remuneration. A 1998 analysis by CBO found that, depending on employees' age, salary, length of service, and retirement plan, benefits for federal employees accounted for 26 percent to 50 percent of their total compensation.[1] For employees of large private firms, benefits made up 24 percent to 44 percent of compensation. (Law enforcement retirement falls under the governmentwide Federal Employees Retirement System, or FERS—and for certain older officers, under the Civil Service Retirement System—but it has additional enhancements.)

In 1990, the National Advisory Commission on Law Enforcement (NACLE) compared the employment benefits provided to state and local law enforcement officers with those received by federal law enforcement officers.[2] The commission determined that, relative to state and local governments, "[t]he federal government more often provides fewer benefits in the areas of life insurance, paid holidays, cash allowances, employee cost and some aspects of coverage of health insurance, and disability benefits." The commission also concluded that federal law enforcement retirement benefits generally "compare favorably to those provided by state and local employers, but the cost to the federal employee is higher than that of the state and local employee."[3] NACLE's report was based on the results of a nationwide survey of law enforcement agencies and officers. No comparable data on benefits have been collected since that 1990 survey.

Information is available concerning federal as well as state and local retirement plans for law enforcement officers.[4] However, the complexity of those plans' provisions makes comparison difficult and subject to a large number of assumptions. Such an analysis is beyond the scope of this report. Nevertheless, the data generally indicate a high degree of variability among state retirement plans.

1. See Congressional Budget Office, *Comparing Federal Employee Benefits with Those in the Private Sector* (August 1998).

2. National Advisory Commission on Law Enforcement, *Report of the National Advisory Commission on Law Enforcement*, OCG-90-2 (Comptroller General of the United States, April 1990), p. 72.

3. Ibid.

4. For a summary of the provisions of state police plans, see, for example, Workplace Economics, Inc., *State Police Retirement Plans, 2004* (Washington, D.C.: Workplace Economics, Inc., 2004).

Those findings are consistent with some observers' criticism of the federal pay structure for law enforcement officers as too inflexible to allow federal employers to be competitive in the labor market for law enforcement officers. The approach that has been taken in legislation introduced in the 108th and 109th Congresses attempts to ensure that pay for federal law enforcement officers is comparable with pay for state and local officers. Specifically, in many geographic job markets in which the federal government employs law enforcement officers, those bills would increase locality adjustments for officers—rather than change their across-the-board pay—in an attempt to enhance the federal government's competitiveness in hiring and retention.[4]

Policymakers have also responded by authorizing the Departments of Homeland Security and Defense to create separate pay systems to replace the general pay schedule

4. For an example of such bills, see H.R. 556, introduced in the 109th Congress, which provides "special pay adjustments" in specific metropolitan areas.

now being used. DHS, which employs about one-quarter of all federal law enforcement officers, has adopted a new personnel system that will set separate pay schedules for each group of officers (and for other occupational groups), a move designed to allow more flexibility in responding to specific recruitment and retention needs both nationally and by locality.[5] The Department of Defense (DoD) is developing a similar system of compensation.[6] In addition, OPM, in a recent report to the Congress, recommended that it be given broad authority, in consultation with the employing agencies, to establish a governmentwide framework for law enforcement pay and employment benefits. The approach would be similar to that of the new DHS and the proposed DoD systems.

Federal and Nonfederal Employment

In conducting its pay comparisons, CBO examined several dimensions of federal and nonfederal law enforcement employment that could lead to differences in pay between officers employed at different levels of government. That assessment yielded both similarities and differences. The federal government, as noted earlier, employs about 106,000 law enforcement officers located in every state and territory of the United States. According to the Bureau of Justice Statistics, as of June 2000, state and local law enforcement agencies employed about 700,000 officers with general arrest powers. The personal and job characteristics of officers working for federal and nonfederal employers differ, according to the data CBO examined. (For example, federal law enforcement officers are more likely than nonfederal officers to have served in the armed forces.) Differences are apparent as well in the amount of training that federal and nonfederal officers undergo. All law enforcement recruits attend police academies or training courses typically for a few months, but federal investigators may train for as long as two years before their employment becomes permanent. In addition, recruits to both federal and nonfederal jobs receive job-specific training, although many of the skills they acquire are transferable to other law enforcement jobs.

There are also important differences between federal and nonfederal jobs' duties and requirements. Federal law enforcement agencies employ a larger proportion of detectives or criminal investigators than do state and local law enforcement agencies; nonfederal agencies employ proportionately more police officers. Within those broad job categories, the duties of federal and nonfederal jobs—and thus the jobs' comparability—may also differ (for example, in terms of risk or scope of responsibility). Those variations may lead to associated differences in the education and experience required for a job. In general, federal law enforcement jobs require officers to have more education than state and local governments demand; indeed, some positions require bachelor's degrees or professional degrees in non-law-enforcement disciplines. Such differences make it important to take into account the "human capital" of law enforcement officers in comparing the wages paid by federal and nonfederal employers for similar jobs.

A major difference between the federal government and state and local governments lies in the way pay is set. Many people argue that the centralized system that is used to set pay for most federal officers is not sufficiently flexible for the needs of law enforcement and leads to noncompetitive pay. By law, federal pay is to be comparable with pay in the private sector within local areas (where "pay" is defined as income from salaries and wages and does not include employment benefits, such as health insurance and retirement benefits).[7] To date, however, those statutes have not been fully implemented. Moreover, most federal law enforcement pay is determined by using the same basic pay schedule that is used to set pay for many other federal jobs and thus does not take the hazardous nature and irregular scheduling of police and investigative work into account.

By contrast, pay for the majority of state and local law enforcement jobs is set by collective bargaining. That process is inherently decentralized inasmuch as nonfederal

5. DHS and OPM jointly published final rules in February 2005 (*Federal Register*, vol. 70, no. 20, February 1, 2005, pp. 5271-5347) to implement a pay system that links pay more closely to performance yet allows more flexibility in establishing geographically based payments. Jobs will be organized into major occupational clusters (with large pay bands and no steps) for which annual pay adjustments, supplemented by a locality-pay rate or a special pay rate, will be provided to employees who meet or exceed expectations about their performance. Locality pay may receive a bigger emphasis in some occupational clusters than in others.

6. DoD and OPM jointly issued proposed regulations for the National Security Personnel System in February of this year (*Federal Register,* vol. 70, no. 29, February 14, 2005, pp. 7552-7603).

7. The Salary Reform Act of 1962, the Pay Comparability Act of 1970, and the Federal Employees Pay Comparability Act of 1990 (FEPCA) provided authority for salary increases to achieve full comparability for federal white-collar employees.

wages and salaries are determined separately for each state or locality and are thus responsive to local labor-market conditions, the job's environment (for example, the level of risk officers must assume to perform a particular job), and the local cost of living. Incentive pay—such as that for hazardous duty, merit, and tuition reimbursement—is common at the state and local levels. At the federal level, special pay is used in certain cases to compensate officers for irregularly scheduled overtime work or to provide an incentive for recruitment or retention.

CBO's Analysis

The human capital approach that CBO used in its analysis allowed it to account for the effects on pay of personal and job-related characteristics of law enforcement officers. There may also, however, be unobservable attributes and job requirements that could not be factored into CBO's analysis. Thus, care is warranted in interpreting the specific findings in the following discussion. Also indicative of the need for caution is that the pay differentials (percentage differences between federal and nonfederal officers' earnings) that CBO presents below are estimated averages; some differentials may vary from those averages.

CBO found that, on average, federal law enforcement officers earned more in annual wages than did comparable state and local law enforcement officers, even after taking into account education, experience, demographic factors, and work hours (see Summary Table 1). On a nationwide average basis, federal police officers earned about 4 percent more than their state and local counterparts, and federal corrections officers earned 11 percent more. The pay differential between federal and nonfederal earnings was larger for detectives and criminal investigators: federal investigators earned about 19 percent more. The biggest pay differential—that between federal and nonfederal corrections supervisors—was about 25 percent.

Differences between the responsibilities that federal and nonfederal jobs entail may partially account for those pay differentials. For example, the large differential that CBO found for corrections supervisors may reflect the fact that federal supervisors, relative to their state and local counterparts, are responsible for larger facilities. Similarly, the differences in the pay of federal and nonfederal investigators may reflect differences in duties and responsibilities or other unobservable characteristics.

Summary Table 1.

Estimated Federal Earnings Differentials as Nationwide Averages After Adjusting for Officers' Personal and Job Characteristics

Occupational Category	Percentage Differential
Police Officers	3.7
Detectives and Criminal Investigators	18.6
Corrections Officers	10.9
Police Supervisors	2.6
Corrections Supervisors	25.4

Source: Congressional Budget Office.

Note: The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings.

The adjustment removed the effects of officers' personal and job characteristics (specifically, education, experience, gender, race, marital status, veteran status, working a nonstandard shift, usual hours worked, number of weeks worked in 1999, and geographic location).

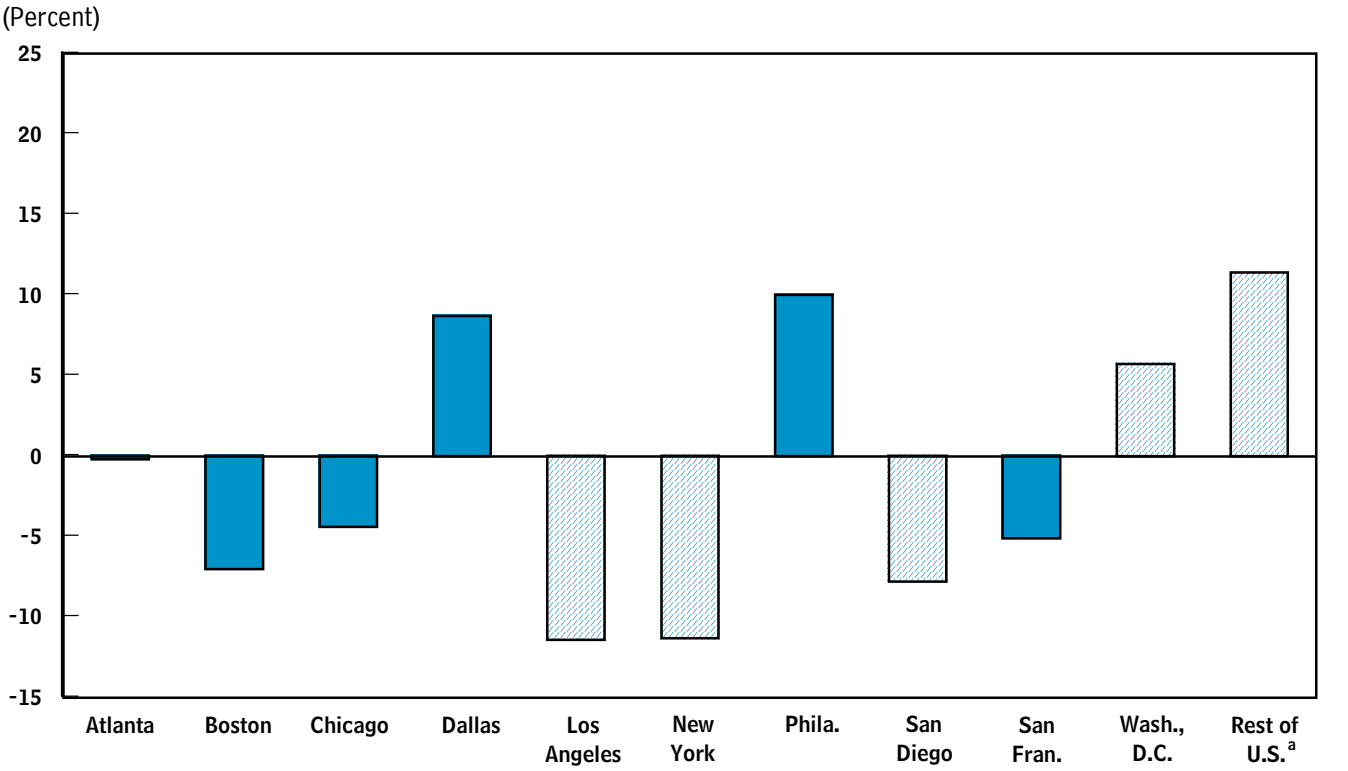
Moreover, CBO's analysis focused on cash compensation—it did not include the value of retirement and other employment benefits. For example, federal law enforcement officers' employment benefits may be more modest than those offered by some states and localities, which may offset federal pay differentials. As described in Box 1, the National Advisory Commission on Law Enforcement (NACLE) reported in 1990 that, in general, federal benefits might be lower than those offered by state and local governments.[8]

Those national averages, however, do not illuminate important regional and local variation in pay. In the case of police officers, for instance, after adjusting for personal and job characteristics, CBO found little evidence of a pay difference between federal and nonfederal officers in most of the localities selected for analysis (see Summary Figure 1). Where there was a disparity, the findings were mixed. In Washington, D.C., federal police officers earned about 6 percent more than nonfederal officers, a

8. See National Advisory Commission on Law Enforcement, *Report of the National Advisory Commission on Law Enforcement*, OCG-90-2 (Comptroller General of the United States, April 1990).

Summary Figure 1.

Estimated Federal Earnings Differentials for Police Officers in Selected Localities



Source: Congressional Budget Office using data from the 2000 decennial census.

Notes: The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings. See Table 7 for additional detail.

The differentials remove the effects of officers' personal and job characteristics (specifically, education, experience, gender, race, marital status, veteran status, working a nonstandard shift, usual hours worked, number of weeks worked in 1999, and geographic location).

Solid shading indicates that the estimate is statistically unreliable. Cross-hatching indicates that the estimate is statistically different from zero at the 90 percent level of confidence.

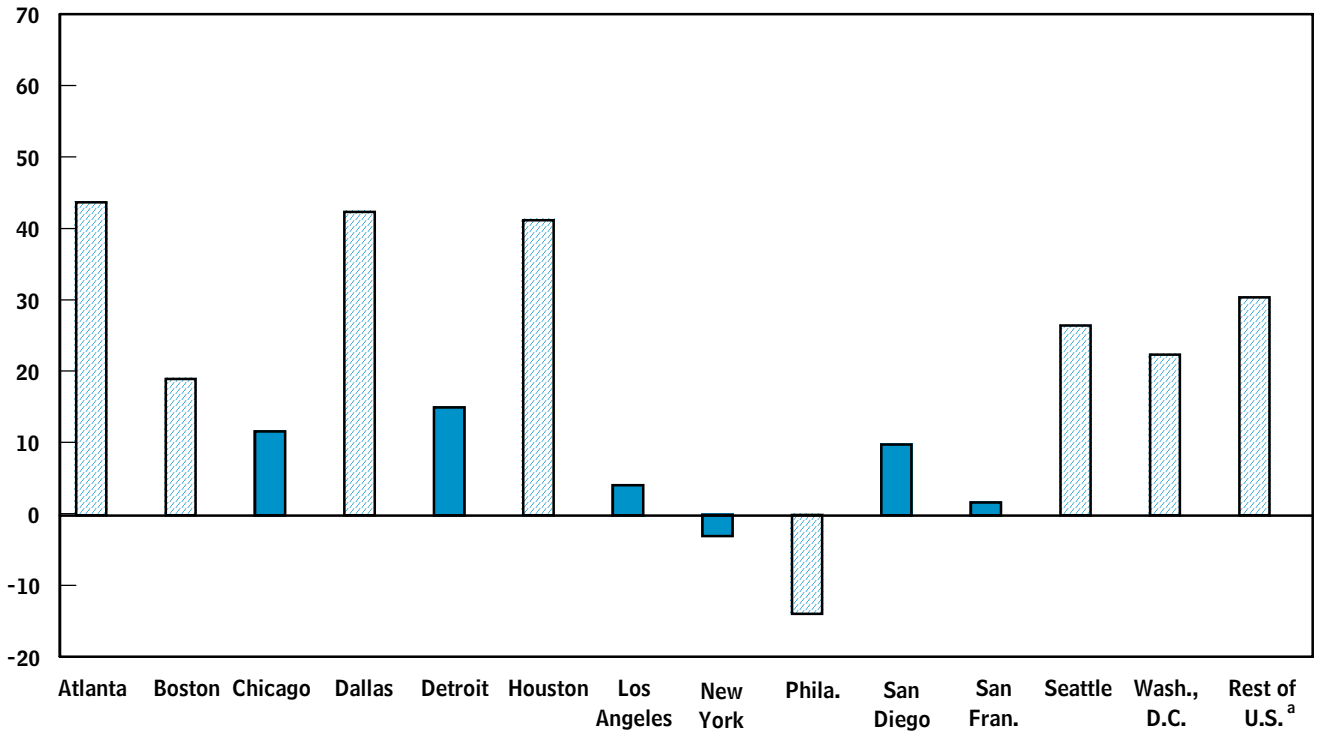
a. The federal locality-pay area designated by the Office of Personnel Management that comprises those portions of the continental United States that are outside the other 31 locality-pay areas.

little above the estimated nationwide average differential. In the "rest of U.S." locality-pay area, federal police officers earned about 11 percent more than nonfederal officers. However, in Los Angeles and New York, federal police officers were paid about 11 percent less, and in San Diego about 8 percent less, than state and local police officers.

In contrast to the findings for police officers, adjusted federal pay for detectives and criminal investigators is higher than nonfederal pay for those jobs in most large localities. However, CBO estimates that substantial variation exists among the selected localities (see Summary Figure 2). In Atlanta, Dallas, and Houston, federal pay was more than 40 percent higher than pay for comparable state and local detectives and criminal investigators, followed by the "rest of U.S." locality-pay area (about 30 percent), Seattle (27 percent), Washington, D.C. (23 percent), and Boston (19 percent). In the case of Chicago, Detroit, and San Diego, the estimated differences were large but not statistically reliable. Other localities also showed little difference between federal and nonfederal pay. However, CBO found that in Philadelphia, federal investigators were paid about 14 percent less than their nonfederal counterparts.

Summary Figure 2.

Estimated Federal Earnings Differentials for Detectives and Criminal Investigators in Selected Localities



Source: Congressional Budget Office using data from the 2000 decennial census.

Notes: The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings. See Table 7 for additional detail.

The differentials remove the effects of officers' personal and job characteristics (specifically, education, experience, gender, race, marital status, veteran status, working a nonstandard shift, usual hours worked, number of weeks worked in 1999, and geographic location).

Solid shading indicates that the estimate is statistically unreliable. Cross-hatching indicates that the estimate is statistically different from zero at the 90 percent level of confidence.

a. The federal locality-pay area designated by the Office of Personnel Management that comprises those portions of the continental United States that are outside the other 31 locality-pay areas.

Additionally, CBO found little evidence of a pay difference between federal corrections officers and comparable state and local corrections officers in four of the six localities it studied. However, CBO estimates that in New York, federal pay was about 11 percent less, and in the "rest of U.S." locality-pay area, federal pay was about 11 percent more. There were insufficient data on police and corrections supervisors to explore potential locality-based differences in pay for those categories of jobs.

Comparing the Pay of Federal and Nonfederal Law Enforcement Officers

Overview of Federal and Nonfederal Law Enforcement Systems

Federal law enforcement officers perform a number of duties: they investigate crimes, apprehend and detain suspected or convicted criminals, protect federal property and officials, patrol in vehicles and on foot, and conduct entry and exit screening at federal facilities. Many of their duties are comparable with the duties performed by law enforcement officers who are employed by state and local governments.

Some observers are concerned that the federal government may be at a disadvantage in the labor market for law enforcement officers because the compensation of federal officers may not be competitive with that for state and local officers, particularly in areas that have a high cost of living.[1] A few studies have suggested that differences in both pay and benefits might give a hiring edge to state and local employers and make it difficult for federal agencies to attract and retain qualified officers. A 2003 analysis by the Government Accountability Office (GAO) found that most officers who left one of 13 federal police forces in the Washington, D.C., metropolitan area in 2002 remained in law enforcement, and some took state or local law enforcement jobs.[2] The Office of Personnel Management (OPM), in a 2004 report to the Congress, stated that recruitment was not a major problem.[3] OPM acknowledged, however, that agencies might be experiencing some recruitment problems "in high-cost cities such as New York, San Francisco, and Los Angeles for lower-graded law enforcement officer (LEO) jobs, especially if those jobs are filled on a local labor market basis (e.g., correctional officers)."[4] The Congress has also heard testimony from various groups that have suggested that the federal government loses investigators to state and local employers because of differences in salaries and benefits.[5]

The Congressional Budget Office's (CBO's) comparison of the pay of federal and nonfederal law enforcement officers employed a human capital approach designed to take into account many of the factors associated with job performance and pay (such as age, experience, and education) and in so doing attempt to isolate the effect of working for a federal or nonfederal employer. As a preliminary to its statistical analysis, CBO examined federal and nonfederal law enforcement employment, considering jobs, requirements, and pay structures.

Comparing Federal and Nonfederal Law Enforcement Jobs and Requirements

Federal and nonfederal law enforcement jobs differ in important ways. More than half of federal jobs are at the in-

1. The federal government does not gather the type of data needed to address the overall effectiveness of recruitment efforts by agencies—that is, information on agencies' recruitment goals and data on whether or not those goals were met.

2. In that year also, a large number of federal police officers transferred to join the newly created Federal Air Marshal Service. See Government Accountability Office (formerly the General Accounting Office), *Federal Uniformed Police: Selected Data on Pay, Recruitment, and Retention at 13 Police Forces in the Washington, D.C., Metropolitan Area*, GAO-03-658 (June 2003).

3. Office of Personnel Management, *Federal Law Enforcement Pay and Benefits: Report to the Congress* (July 2004), Appendix D, p. 8.

4. Ibid.

5. See, for example, the statement of Richard J. Gallo with Timothy Danahey, Federal Law Enforcement Officers Association, before the Subcommittees on Civil Service and Agency Reorganization and on Criminal Justice, Drug Policy, and Human Resources of the House Committee on Government Reform, July 23, 2003.

vestigator level, whereas more than half of state and local law enforcement personnel are police officers. And even within those broad categories, the duties and responsibilities of federal and nonfederal jobs—and thus their comparability—differ. A private firm that contracted with the National Advisory Commission on Law Enforcement (NACLE) to evaluate the work of federal versus state and local officers found that for uniformed officer, probation officer, and correctional officer positions, the jobs at all three levels of government were "essentially equivalent" but the "[d]uties and responsibilities of federal non-uniformed officer positions [that is, detectives and investigators] generally exceeded [those of] state and local non-uniformed officer positions."[6] Federal investigators differ from their state and local counterparts in the scope and complexity of the crimes they investigate; the duties required of federal and nonfederal police officers may differ as well. Federal police officers generally have less physical area to patrol, but they have more responsibility for securing and limiting access to buildings and installations.

Along with some of those differences in duties are differences between federal and nonfederal employers in their jobs' education and training requirements. In general, the federal government requires law enforcement officers to have more education than state and local governments require. For example, federal criminal investigator jobs usually demand a college degree and previous experience; by comparison, a smaller percentage of state and local positions require a college degree—and then, usually a two-year associate's degree. In general, the education requirements of federal and nonfederal employers for police officer jobs are more similar than those employers' requirements for investigative jobs.

Requirements for training tend to be job specific at both the federal and the state and local government levels; in many cases, recruits must complete formal agency-specific training courses. Many of the skills they acquire, however, are transferable among law enforcement jobs both within or among particular levels of government.

For some law enforcement job categories, federal and nonfederal employers compete for people with law enforcement skills. (In a more limited number of instances, governmental employers of law enforcement officers compete for personnel with private-sector providers of protective services.) For other categories, the pools of candidates that federal and nonfederal employers draw from may differ. For police officers, the education and training required are similar for federal and nonfederal positions, although the duties such officers perform may differ significantly. For detective and investigator positions, federal and nonfederal employers draw from different groups. The federal government generally hires investigators either from the ranks of senior detectives at the state or local level or—as suggested by differences in the education required for some federal jobs—from among professionals in careers outside of law enforcement (such as lawyers and accountants).[7] By contrast, state and local detectives and investigators generally rise to their positions through the police officer ranks.

Federal Law Enforcement. According to OPM, the federal government currently employs about 106,000 law enforcement officers. A 2002 Justice Department survey examined the duties and responsibilities of 93,000 full-time officers; according to those data, criminal investigation and noncriminal investigation and inspection accounted for 54 percent, corrections and court operations accounted for 22 percent, and police and security and protection accounted for 23 percent (see Figure 1).[8] At that time, the largest employing agencies were the Immigration and Naturalization Service, with about 19,000

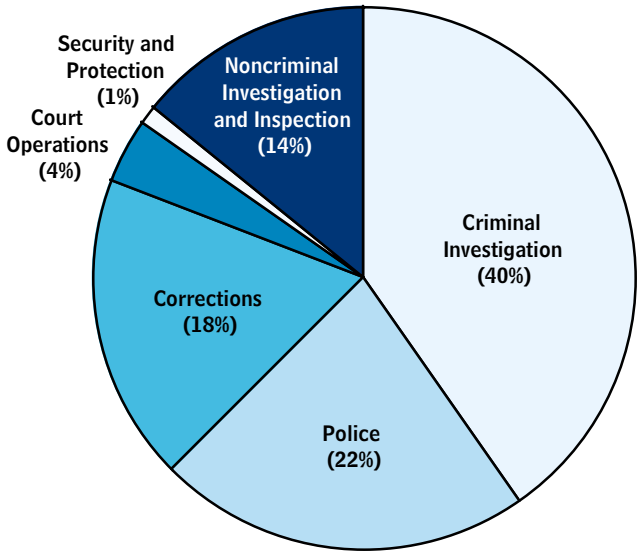
6. National Advisory Commission on Law Enforcement, *Report of the National Advisory Commission on Law Enforcement*, OCG-90-2 (Comptroller General of the United States, April 1990), p. 45.

7. In testimony before the Subcommittees on Civil Service and Agency Reorganization and Criminal Justice, Drug Policy, and Human Resources of the House Committee on Government Reform, July 23, 2003, Nancy Savage of the FBI Agents Association commented on the variety of disciplines from which the bureau draws its personnel.

8. Department of Justice, Bureau of Justice Statistics, *Federal Law Enforcement Officers, 2002,* NCJ 199995 (2002). The bureau's survey, which covered about 93,000 full-time federal officers, nevertheless excluded a number of law enforcement personnel, such as those stationed in foreign countries, those in the armed forces, and those in classified positions (for example, federal air marshals and officers in the Central Intelligence Agency's Security Protective Service).

Figure 1.

Duties of Federal Law Enforcement Officers



Source: Congressional Budget Office using data from the Bureau of Justice Statistics.

Note: Under the census's categorization of law enforcement jobs, the duties of criminal and noncriminal investigation and inspection would be handled by detectives and criminal investigators. Similarly, the duties of corrections officers would include court operations, and those of police officers would encompass security and protection.

full-time officers (see Table 1); the Federal Bureau of Prisons, with 14,000; the U.S. Customs Service, with 12,000; and the Federal Bureau of Investigation (FBI), with 11,000.[9] Federal officers work in every state and territory of the United States, although they may be concentrated in some geographic areas (see Table 2). For example, a large number of border patrol agents (numbering almost 10,000) work in the four states that border Mexico, and federal criminal investigators are concentrated in the District of Columbia.

Federal agencies establish hiring requirements for law enforcement jobs on the basis of their needs and in compliance with laws governing the federal law enforcement retirement systems.[10] In addition, most federal agencies require that an applicant pass a written entrance examination. OPM administers such a test for the majority of federal employers, although some agencies administer their own test.

Prerequisites for formal education and previous law enforcement experience also vary by agency and type of job. Criminal or noncriminal investigator positions tend to require more of both. For instance, to become an FBI agent requires a four-year college degree and work experience. By contrast, for an entry-level park ranger position, recruits need not have a degree but may qualify with one year of experience related to the management and protection of natural or cultural resources.

Most federal officers are trained through the Federal Law Enforcement Training Center, or FLETC. (Officers hired by the FBI and the Drug Enforcement Administration, however, are trained in those agencies' facilities at Quantico, Virginia.) More than 70 federal agencies train personnel at various FLETC locations. In fiscal year 2002, 32,000 officers—including 2,600 state and local personnel and some international law enforcement officers—completed training through the FLETC.[11]

Basic training requirements differ by job and agency. For criminal investigators, classroom training commonly ranges from about eight to 22 weeks; for police officers, training lasts between four and 26 weeks. Field training requirements range from two weeks to six months for police officers, whereas for investigators, training can be as long as two years.

For some federal law enforcement jobs, agencies hire at the national level and require candidates to accept assignment anywhere in the nation. FBI recruits, for example, must be willing to work in any of the bureau's more than 50 field offices. Once employed, the officers are transferred relatively often—typically, at least three times, according to anecdotal evidence. That feature of employ-

9. Ibid. The Homeland Security Act of 2002 transferred the Immigration and Naturalization Service and the Customs Service to the Department of Homeland Security.

10. To qualify for enhanced law enforcement retirement coverage under the Federal Employees Retirement System, law enforcement positions must meet a rigorous-duty standard. The statute—at 5 U.S.C. §8401 (17)(A)(ii)—requires a law enforcement officer position to be limited to "young and physically vigorous individuals." OPM regulations under the law—at 5 C.F.R. §842-802—further require the affected agency to establish a maximum entry age (usually set at 37) for the position as well as physical fitness and medical standards.

11. Department of Justice, Bureau of Justice Statistics, *Federal Law Enforcement Officers, 2002*.

Table 1.

Major Employing Agencies of Federal Law Enforcement Officers, June 2002

	Number of Officers	Percentage of Total
Immigration and Naturalization Service[a]	19,101	20.5
Federal Bureau of Prisons	14,305	15.4
Customs Service[a]	11,634	12.5
Federal Bureau of Investigation	11,248	12.1
Secret Service[a]	4,256	4.6
Drug Enforcement Administration[a]	4,020	4.3
Postal Inspection Service	3,135	3.4
Internal Revenue Service Criminal Investigation	2,885	3.1
U.S. Marshals Service	2,646	2.8
Bureau of Alcohol, Tobacco, and Firearms[a]	2,335	2.5
National Park Service	2,139	2.3
Capitol Police	1,225	1.3
Total	**78,929**	**84.9**
Memorandum:		
Total Full-Time Personnel[b]	93,000	100.0

Source: Congressional Budget Office using data from the Bureau of Justice Statistics.

a. Now part of the Department of Homeland Security.

b. Does not include a number of officers, such as those stationed in foreign countries, those in the armed forces, and those in classified positions (for example, federal air marshals and officers in the Central Intelligence Agency's Security Protective Service).

ment at the FBI is one that requires the federal government in some way to compensate the officers.

State and Local Law Enforcement. As of June 2000, state and local law enforcement agencies employed about 700,000 law enforcement officers.[12] Larger municipal police departments (those with 100 or more officers) employed 22 full-time law enforcement personnel for every 10,000 residents; county police departments, sheriff's offices, and state agencies employed 11, 10, and two officers per 10,000 residents, respectively.[13] Most of those personnel (72 percent for state agencies and 61 percent for county and municipal police departments) were uniformed police officers. (The breakdown for law enforcement officers employed in sheriff's offices differed: 47 percent were police officers, 19 percent performed jail duty, and 8 percent handled court security.)

Education prerequisites for police officer positions differ among jurisdictions. In 2000, 12 percent of state agencies required a two-year college degree, but only 2 percent required a four-year degree. One in 10 municipal and county police departments required a college degree, and about one in seven sheriff's offices had a college degree requirement. Six percent of county and 2 percent of municipal police departments required a four-year college degree.

Comparing Federal and Nonfederal Pay Structures

A concern that has been raised about the federal government's ability to recruit and retain high-quality law enforcement officers involves the flexibility of the federal pay structure. State and local employers can respond to local labor-market conditions more readily than federal

12. Out of more than 1 million full-time-equivalent personnel, about 700,000 were so-called sworn officers with general arrest powers; the remainder were people with duties other than those of making arrests and carrying weapons. See Department of Justice, Bureau of Justice Statistics, *Census of State and Local Law Enforcement Agencies, 2000*, NCJ 194066 (October 2002), available at www.ojp.usdoj.gov/bjs/pub/pdf/csllea00.pdf.

13. Department of Justice, Bureau of Justice Statistics, *Law Enforcement Management and Administrative Statistics, 2000: Data for Individual State and Local Agencies with 100 or More Officers*, NCJ 203350 (March 2004), available at www.ojp.usdoj.gov/bjs/pub/pdf/lemas00.pdf.

Table 2.

Number of Federal Law Enforcement Officers in Selected Occupations by State, March 2004

	Criminal Investigator	Border Patrol Agent	Corrections Officer	Park Ranger	U.S. Marshal	Police Officer
Alabama	128	7	165	61	15	85
Alaska	86	0	0	146	1	41
Arizona	432	2,350	322	263	23	96
Arkansas	73	2	138	162	7	41
California	2,132	2,613	1,314	566	65	774
Colorado	249	0	677	183	12	114
Connecticut	123	0	102	17	3	60
Delaware	25	0	0	1	1	11
District of Columbia	5,270	38	0	157	101	434
Florida	1,219	61	1,112	212	45	578
Georgia	653	40	529	215	25	229
Hawaii	136	0	122	66	4	373
Idaho	61	18	0	42	3	11
Illinois	640	0	578	89	30	202
Indiana	121	0	230	47	12	128
Iowa	62	0	0	66	13	31
Kansas	70	0	274	42	8	53
Kentucky	110	0	756	101	6	40
Louisiana	267	27	490	69	11	90
Maine	43	117	0	20	2	112
Maryland	421	0	141	125	7	566
Massachusetts	341	0	205	230	7	108
Michigan	313	127	157	40	8	101
Minnesota	130	46	341	73	11	42
Mississippi	96	7	126	137	7	125
Missouri	244	0	218	160	17	82
Montana	79	130	15	78	2	44
Nebraska	59	0	0	33	7	26

Continued

employers can, whereas the federal government relies more on the uniformity inherent in its basic pay systems. The sections that follow describe aspects of the pay-setting mechanisms of federal and nonfederal law enforcement employers.

The Federal Pay System for Law Enforcement Officers. The pay of about 80 percent of federal law enforcement officers is based on the government's General Schedule (GS), a framework of base salaries and step increases that is used to set pay for a variety of government jobs.[14] In general, federal white-collar jobs are assigned a GS grade on the basis of a number of factors, including a job's duties and responsibilities and the knowledge, skills, and abilities or competencies required of the person who fills that job. Pay varies within a grade level on the basis of 10 steps; employees receive step increases within a grade if they perform acceptably and have satisfied the waiting-period requirement established for each step. The pay of federal law enforcement officers is set by law and is higher than that for other GS employees for grades 3 through 10.[15]

14. Pay for other law enforcement jobs is established by the Federal Wage System (a uniform pay-setting system that covers blue-collar employees who are paid by the hour), through separate pay schedules for senior executive and professional personnel, or directly by law, administrative action, or collective bargaining. More information on the Federal Wage System is available at www.opm.gov/oca/wage/. According to OPM, of the roughly 106,000 federal law enforcement officers, about 91,000 are covered by standard basic pay systems (86,000 fall under the General Schedule, and 4,500 under the Federal Wage System). See Office of Personnel Management, *Federal Law Enforcement Pay and Benefits*, p. 27.

15. Section 403 of the Federal Law Enforcement Pay Reform Act of 1990, 5 U.S.C. §5305 note.

Table 2.

Continued

	Criminal Investigator	Border Patrol Agent	Corrections Officer	Park Ranger	U.S. Marshal	Police Officer
Nevada	118	0	44	57	5	44
New Hampshire	32	0	0	20	2	10
New Jersey	406	0	404	49	7	239
New Mexico	151	548	4	121	13	98
New York	1,186	188	734	157	41	379
North Carolina	240	0	435	122	11	85
North Dakota	45	69	18	43	2	44
Ohio	297	0	146	82	17	166
Oklahoma	114	0	320	98	12	145
Oregon	124	0	176	130	11	37
Pennsylvania	473	0	1,228	327	20	354
Rhode Island	51	0	0	10	3	40
South Carolina	126	51	308	57	19	150
South Dakota	56	0	41	65	5	41
Tennessee	195	0	151	128	17	101
Texas	1,633	4,386	1,694	265	82	490
Utah	103	2	4	119	14	48
Vermont	62	64	0	14	4	9
Virginia	693	0	486	232	17	667
Washington	382	185	146	159	14	196
West Virginia	63	0	420	101	4	64
Wisconsin	87	0	148	39	6	103
Wyoming	35	0	4	139	3	32
Unavailable Data[a]	17, 590	0	0	0	0	86
Total	**37,845**	**11,076**	**14,923**	**5,935**	**782**	**8,225**

Source: Congressional Budget Office based on data from the Office of Personnel Management's Central Personnel Data File.

Note: The data are restricted to employees covered by pay plans that use the General Schedule grade structure to classify jobs.

a. For purposes of security, detailed information is not available for the Federal Bureau of Investigation; Drug Enforcement Administration; Bureau of Alcohol, Tobacco, and Firearms; Secret Service; and Bureau of the Mint.

Many observers maintain that the federal government should use specialized systems and schedules rather than the General Schedule to determine pay for law enforcement officers. Their primary argument is that the General Schedule, with its grade-level system that is common to other federal occupations and its standard method of step-based increases in salary, is not flexible enough to help agencies meet their law enforcement recruiting goals. For example, the factors used to evaluate typical white-collar jobs for placement on the GS scale may not be appropriate for law enforcement because the unique risks and responsibilities of law enforcement officers are not taken into account.

Pay Setting by Nonfederal Employers. Pay setting for state and local police forces is by its very nature decentralized. A substantial number of nonfederal employers allow collective bargaining; it is used to set pay for about 70 percent of municipal police forces and 50 percent of county and state law enforcement agencies. (Forty-two percent of sheriff's offices allow collective bargaining.)[16] Police officers are legally prohibited from striking; they may nevertheless achieve their contract demands through arbitration, statutes for which are in place in a number of

16. Department of Justice, Bureau of Justice Statistics, *Law Enforcement Management and Administrative Statistics, 2000*, p. vi.

states.[17] (Arbitration allows for the settling of disputes—especially labor disputes—between two parties by an impartial third party, whose decision the contending parties agree to accept.) In setting or negotiating pay, state and local employers may consider a number of factors, including the following:

- *Competition for recruits.* In urban areas that have many police forces at the local level and a large federal law enforcement presence, officers will demand higher salaries. Private-sector employers may also compete for recruits in those areas.
- *Local cost of living and housing costs*. Some local jurisdictions set pay to account for local cost-of-living factors, particularly the cost of housing. That kind of flexibility helps attract new recruits and discourages highly skilled officers from moving.
- *Relative risk of a job.* Some duties of a law enforcement job may put an officer in danger, whereas other duties (perhaps in different locations) are less risky. Some state and local governments provide hazard pay for selected duties.

State and local police pay scales are generally similar in structure—they have steps and grades, although the pay levels are not the same—to the federal GS schedule and to military-rank pay systems. Police officers are ranked to set their base pay; within those ranks, step increases are granted largely on the basis of an officer's time in service.[18]

Special Pay. One of the reimbursement tools that gives some pay flexibility to agencies that compete in hiring law enforcement officers is special pay provided in addition to base salaries. State and local government agencies commonly offer incentive pay for additional education as well as reimbursement for tuition. For example, among large nonfederal employers (those employing 100 or more officers), 61 percent provide education incentive pay, and 69 percent reimburse tuition expenses.[19] (When considered according to the type of nonfederal employer, the data show that 20 percent of county police and 27 percent of state police provide incentive pay; for tuition reimbursement, the proportions range from 59 percent of sheriff's offices to 73 percent of municipal police forces.) More than a third of large state and local law enforcement agencies provide some type of merit pay or increased pay for special skills or proficiency. Twenty-seven percent of those agencies provide hazardous-duty pay, and 44 percent provide a differential for a nonstandard shift (for example, night work).[20]

The federal GS system also allows law enforcement officers to receive extra compensation in some instances, notably when a job involves hazardous duty. In addition, many federal law enforcement officers receive a substantial percentage increase on top of their base pay for a category of duties known as irregularly scheduled overtime work.[21] Those payments considerably increase an officer's take-home pay, although the sum of base pay and differential pay is subject to a pay cap.[22] Some federal officers are also eligible for overtime pay, a night-shift differential, Sunday pay, and holiday pay. Moreover, OPM has the authority to give special locality payments to certain occupational groups under various circumstances that include problems with recruitment and retention.[23]

Pay Comparisons Using the Human Capital Approach

How much more or less would a federal law enforcement officer be paid if he or she were to leave the federal government for a state or local law enforcement job? Addressing that question is central to pay comparisons such

17. See R.G. Valletta and R.B. Freeman, "The NBER Public Sector Collective Bargaining Law Data Set," Appendix B in Richard B. Freeman and Casey Ichniowski, eds., *When Public Employees Unionize* (Chicago: National Bureau of Economic Research and University of Chicago Press, 1988). The data used were updated and are available at www.nber.org/publaw/.

18. See www.policepay.net for examples of pay scales by city.

19. Department of Justice, Bureau of Justice Statistics, *Law Enforcement Management and Administrative Statistics, 2000*, Table C.

20. Ibid.

21. That category encompasses administratively uncontrollable overtime pay, which is a discretionary payment of 10 percent to 25 percent for Border Patrol agents and certain other law enforcement officers, and law enforcement availability pay (LEAP), which is a fixed 25 percent supplement for criminal investigators and some other law enforcement personnel. LEAP recipients are not eligible for overtime pay.

22. 5 U.S.C. §5307.

23. That authority is provided in 5 U.S.C. §5305(a). According to OPM, fewer than 2 percent of federal law enforcement officers receive those special rates.

as CBO's. Some pay comparisons for law enforcement personnel have used a job-matching approach.[24] That method draws on administrative data to match the base pay of federal jobs at specific GS grades and steps with the base pay of corresponding nonfederal jobs at equivalent state and local grades and steps. (For example, a GS-12 federal criminal investigator might be matched with a police sergeant or detective in a particular metropolitan area.) The job-matching approach, however, has several significant drawbacks:

- Matching jobs requires analysts to make subjective choices about which grades and steps and which experience profiles to use for the comparisons.
- Both federal and nonfederal law enforcement officers receive pay above their base levels that cannot be quantified with the available data.
- The distribution of skills among federal law enforcement officers may differ from the distribution among nonfederal officers within the matched positions, thus diminishing the jobs' comparability. (For example, federal criminal investigator jobs require a different mix of skills than state or local investigator positions require.)

Pay comparisons that employ job matching are more informative than simple comparisons of all law enforcement jobs. But unless the job matches are identical, differences that an analysis reveals may be caused by differences in the jobs and the people who hold them rather than by the pay structures of the employing governments.

To improve estimates of the differences between federal and nonfederal law enforcement officers, CBO used a human capital approach to make pay comparisons.[25] That approach relied primarily on statistical analysis using data from the 2000 decennial census related to individuals' personal and job characteristics and earnings (including pay provided in addition to law enforcement officers' base wages and salaries) rather than on the matching of jobs between the federal GS system and various state and local pay schedules. Moreover, in relating individuals' characteristics to their earnings, the human capital approach that CBO used relies on a labor-market framework. In such markets, in which individuals may move from job to job and employers may choose among them, it is the productive potential and preferences of those people—rather than schedules, steps, and grades—that for the most part determine differences in earnings.

Law enforcement officers who are more highly educated and more experienced than otherwise similar individuals are generally more productive (with more knowledge and skills) and therefore more valuable to an employing agency. Independent of whether an officer is employed by the federal government or by a state or locality, officers with more experience will generally be paid more than officers with less experience. Likewise, officers with more formal education will generally command a higher salary than officers with less education to compensate for lost wages and the cost of schooling and to reflect the greater productivity likely to result from that education.

In addition to education and experience, individual tastes or preferences are a factor in determining wages. As discussed earlier, law enforcement jobs at the federal and at the state and local levels of government differ in a number of respects. For example, some federal officers are subject to regular reassignments, which demands that they be willing to move or travel frequently. And federal jobs differ from state or local jobs in terms of risk and levels of responsibility and complexity. Any of those attributes may be a factor in a law enforcement recruit's choice of whether to work for the federal government or for a state or local government. In some cases, those preferences may be partially driven by demographic factors, such as marital status, gender, or race. Therefore, pay comparisons must necessarily take such characteristics into account.

To sum up, differences in human capital and individual preferences lead to differences in earnings. A pay comparison that failed to adjust for the personal and job characteristics of individuals might erroneously associate differences in their earnings with the level of government at which they were employed. CBO's analysis thus used a

24. See the statement of Richard J. Gallo with Timothy Danahey, July 23, 2003, and National Advisory Commission on Law Enforcement, *Report of the National Advisory Commission on Law Enforcement*.

25. The human capital approach is the dominant theory of wage determination in the field of economics. For useful discussions of that approach, see Robert J. Willis, "Wage Determinants: A Survey and Reinterpretation of Human Capital Earnings Functions," in O. Ashenfelter and R. Layard, eds., *Handbook of Labor Economics,* vol. 1 (London: Elsevier Science Publishers, 1986); and Congressional Budget Office, *Comparing Federal Salaries with Those in the Private Sector* (July 1997).

regression framework (described in more detail in the appendix) to compare the annual earnings of federal and nonfederal officers after adjusting for differences in individual officers' personal and job characteristics.

CBO's Analysis

CBO's study compared the pay of federal and nonfederal law enforcement officers in five broad job categories at the national and regional levels and for selected metropolitan areas. The pay data were adjusted to account for factors, aside from that of an officer's employer, that might affect his or her pay. (CBO presents below descriptive statistics related to those factors, or characteristics, for the analyzed sample of law enforcement officers.) Specifically, CBO applied the statistical technique of regression analysis to the raw earnings data to account for the determinants of pay and allow the effect of whether an individual officer is employed by the federal government or a state or local government to be isolated from other pay determinants. National-level results are presented as well as results for selected geographic areas.

Data

CBO drew the data for its analysis from the 2000 decennial census, which collected information on the personal and job characteristics and earnings of all respondents, including law enforcement officers.[26] (CBO's analysis covered only public-sector officers and did not extend to such personnel employed in the private sector.) The sample of officers that CBO used was restricted to individuals aged 21 to 57 who received pay for work for at least 40 weeks in 1999, earned between $10,000 and $175,000, were not on active duty in the military, and worked for either the federal or a state or local government.[27] (Age 21 was used as the lower bound because it corresponds to the minimum age requirement for many federal and nonfederal law enforcement jobs; age 57 was used as the upper bound because it corresponds to the mandatory retirement age for federal law enforcement officers.) CBO analyzed five categories of law enforcement jobs (see Table 3): police officers (including police and sheriff's patrol officers and transit and railroad police); detectives and criminal investigators; corrections officers (including bailiffs and jailers); police supervisors (that is, first-line supervisors or managers of police and detectives); and corrections supervisors (first-line supervisors or managers of corrections officers).

Table 3.

Number of Law Enforcement Officers in CBO's Sample by Occupation and Employer

	Federal	Nonfederal	Total
Police Officers	1,626	24,533	26,159
Detectives and Criminal Investigators	1,311	3,421	4,732
Corrections Officers	1,024	16,093	17,117
Police Supervisors	168	4,475	4,643
Corrections Supervisors	155	2,072	2,227

Source: Congressional Budget Office using data from the 2000 decennial census.

Notes: CBO's sample was restricted to officers aged 21 to 57 who had worked at least 40 weeks in 1999, had annual earnings that year between $10,000 and $175,000, and were not on active duty in the military.

Nonfederal = state and local government.

Comparing Unadjusted Earnings

Before performing its regression analysis to adjust for human capital factors (such as officers' personal characteristics and experience), CBO compared the raw earnings of federal and nonfederal law enforcement officers (see Table 4). If earnings are considered as an overall (nationwide) average, federal law enforcement officers earn more than state and local officers. CBO found the smallest raw differences (less than 10 percent) between federal and nonfederal police officers, corrections officers, and police supervisors. By contrast, the earnings of federal detectives and criminal investigators were more than 30 percent greater than those of their state and local counterparts, and federal corrections supervisors made about 26 percent more than their nonfederal counterparts.

The unadjusted federal earnings differentials varied by region for all job categories.[28] For example, CBO's analysis

26. Specifically, CBO used the 5 percent public-use microdata sample, a 1-in-20 sample of U.S. households.

27. Ninety percent of those individuals reported that they were paid for work for all 52 weeks in 1999, including paid time off.

28. The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings.

Table 4.

Estimated Federal Earnings Differentials by Region Without Adjusting for Law Enforcement Officers' Personal and Job Characteristics

(Percent)

	Police Officers	Detectives and Criminal Investigators	Corrections Officers	Police Supervisors	Corrections Supervisors
Nationwide	9.3	33.3	9.5	7.2	26.4
Midwest	4.9	48.5	19.4	14.1	40.1
Northeast	-1.0	12.2	-4.0	-16.1	6.1
South	29.2	62.6	23.2	34.8	51.1
West	-1.8	15.2	6.3	-8.0	5.4

Source: Congressional Budget Office using data from the 2000 decennial census.

Note: The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings.

showed that federal police officers in the South made about 30 percent more than their state and local counterparts. (One explanation of that large differential may be that the South encompasses the Washington, D.C., metropolitan area, where a large number of federal police officers are assigned.) In the Midwest, federal police officers earned about 5 percent more than their state and local counterparts. By contrast, in the other two regions, no significant difference was observed.

Among detectives and criminal investigators, federal officers earned significantly more than state and local officers in all four regions, in CBO's estimation. In the South, federal investigators earned in excess of 60 percent more, and in the Midwest, almost 50 percent more—both well above the national average unadjusted earnings differential for investigators. In the Northeast and West, the differentials were less than the overall average, with federal investigators earning 12 percent and 15 percent more, respectively. For the other occupational categories, pay differentials for federal officers in the South and Midwest regions were larger than the nationwide average differential. Otherwise, the pay differential for corrections officers was less positive for federal personnel in the West than it was in other regions and less positive for corrections supervisors in both the West and Northeast. By contrast, the earnings differential favored state and local corrections officers in the Northeast (that is, the differential was negative) and state and local police supervisors in the Northeast and West.

Those data suggest that positive federal earnings differentials are more pronounced in the Midwest and South than they are in the Northeast and West—with state and local officers in some job categories in the Northeast and West earning more than their federal counterparts. Those differences may be driven in part by the distribution of federal jobs and the location of more highly paid senior staff across the country.

Comparing Individuals' Personal and Job Characteristics

In terms of age, gender, and race, federal officers are similar to state and local officers among the various job categories with only a few exceptions, some of which may be related to the geographic location of federal agencies (see Table 5). More federal than nonfederal police officers are Hispanic, and more corrections officers at the federal level are black and fewer are female than are corrections officers at the state and local levels. Federal police supervisors are twice as likely as their state and local counterparts to be black. Also more likely to be black are federal corrections supervisors. State and local police supervisors are more likely than their federal counterparts to be married, but the opposite is true for corrections supervisors.

Among all job categories, federal law enforcement officers are more likely than nonfederal officers to have served in the armed forces. The differences are quite large: for example, 44 percent of federal police officers are veterans, compared with 25 percent of state and local police officers. The smallest difference is among corrections supervisors: 35 percent of federal officers are former service

Table 5.

Personal and Job Characteristics and Average Earnings of Law Enforcement Officers

	Police Officers		Detectives and Criminal Investigators		Corrections Officers		Police Supervisors		Corrections Supervisors	
	Fed.	Nonfed.	Fed.	Nonfed.	Fed.	Nonfed.	Fed.	Nonfed.	Fed.	Nonfed.
Personal Characteristics										
Age (Mean)	37	36	40	41	36	38	42	43	42	42
Sex—Female (Percent)	13	13	21	20	22	25	10	12	24	24
Black (Percent)	14	12	10	10	28	23	21	10	28	21
Hispanic (Percent)	13	8	10	10	10	8	12	6	17	8
Veteran (Percent)	44	25	33	24	44	28	46	26	35	30
Married (Percent)	68	68	72	74	63	63	75	79	74	69
Education										
High school or less	15	16	4	11	33	38	18	14	26	27
Some college but no degree	35	41	11	37	37	40	36	36	33	36
Associate's degree	10	16	4	15	9	11	9	16	8	12
Bachelor's degree	34	23	60	31	18	9	28	25	25	19
Graduate degree	6	3	21	5	3	1	8	9	8	7
Average Earnings and Job Characteristics										
Earnings (Dollars)										
Annual earnings from wages	48,360	44,237	65,195	48,923	37,801	34,532	58,965	55,028	51,620	40,841
Earnings other than wages	2,275	1,420	2,931	2,625	1,461	1,325	1,461	2,643	1,048	2,001
Total	50,636	45,656	68,125	51,548	39,263	35,857	60,426	57,671	52,668	42,841
Job-Related Factors										
Number of hours worked per week	47	43	50	44	42	42	46	44	44	43
Percentage who worked a non-standard shift[a]	32	41	9	13	38	46	27	29	24	36

Source: Congressional Budget Office using weighted data from the 2000 decennial census.

Note: Nonfederal = state and local government.

a. Based on the number of respondents who reported leaving home for work after 1 p.m. and before 5 a.m.

members compared with 30 percent of state and local officers. One explanation for the size of that discrepancy is that preferences are given to some veterans in federal hiring.[29] In addition, veterans may prefer federal employment because military service counts toward service years in calculating federal civilian retirement benefits.

Among all categories, federal law enforcement officers have more formal schooling than their state and local counterparts. That difference is most distinct among detectives and criminal investigators: an overwhelming majority (81 percent) of such federal personnel have a four-year college or advanced degree, but only 36 percent of state and local investigators have such credentials. The wide disparity suggests that comparisons of detective and investigator personnel may be problematic even after controlling for officers' personal and job characteristics. (For example, the census data do not specify the field of the degree.) As noted earlier, many federal criminal investigators work for agencies such as the FBI and the Drug Enforcement Administration and may have formal training in diverse disciplines. In those instances, it is likely that the federal government hires from a different labor pool than the one from which state and local agencies draw their recruits, which may make direct comparisons inappropriate.

Estimated annual wage earnings are consistently higher for law enforcement officers employed by federal agencies among all occupational categories, although the difference is most distinct for investigators, at $16,000 (see Table 5). The next largest dollar difference is about $11,000 for corrections supervisors; the other differences are less than $5,000. Earnings other than wages are a small part of law enforcement officers' total earnings. However, the data show that except among corrections officers, federal law enforcement officers tend to have more nonwage earnings than nonfederal officers have.

29. The Veterans' Preference Act of 1944, as amended, is the primary source of veterans' preference authorities within the federal government. The law gives preference to veterans who are disabled or who served on active duty during specified periods or in military campaigns when they compete with nonveterans in being hired for certain federal positions and in being retained during reductions in force. For instance, in competitive hiring for certain positions in the executive branch, a preference-eligible veteran who meets the minimum qualifications of the position will have 10 points added to his or her passing score on the civil service exam. (For more information, see *VetsInfo Guide* at www.opm.gov.veterans.html/vetsinfo.pdf.)

Among police officers and investigators, federal officers usually work more hours than nonfederal officers do. Among other types of law enforcement job categories, federal and nonfederal officers work similar hours. However, state and local law enforcement officers are more likely than federal officers to work nonstandard shifts.

Comparing Adjusted Differentials

Measurable differences exist between the personal and job characteristics of federal and nonfederal law enforcement officers, and those differences may help explain some of the raw earnings differentials. Thus, although it may not be possible to identify all of the factors that lead to differences in pay, it is important to take into account—control for—those differences that can be measured. CBO applied statistical techniques to the raw earnings data from the 2000 census to account for the determinants of pay and allow the effect of whether an individual officer was employed by the federal government or a state or local government to be separated from other factors. CBO presents results both on a nationwide basis and for selected geographic areas.

When the census data were adjusted for individuals' backgrounds (measured human capital) and other factors that influence wages and salaries, the positive nationwide raw earnings differentials that CBO found were significantly reduced for federal police officers, detectives and criminal investigators, and police supervisors (see Table 6). (For corrections officers, the differential actually increased by a small amount. For corrections supervisors, the reduction resulting from the adjustment was very small.) Those findings demonstrate that differences in the backgrounds of law enforcement officers explain a large amount of the difference in earnings between federal and nonfederal officers.

Among federal police officers, those earnings differences are small; CBO estimates that on a national average basis, federal police officers earn about 4 percent more after controlling (adjusting) for education and other demographic factors. Among police supervisors, CBO finds no evidence that federal pay is any higher or lower than nonfederal pay for comparable officers. For the other three categories, CBO finds that after controlling for personal and job characteristics, federal officers on a nationwide average basis earn significantly more than state and local officers. For instance, federal investigators earn almost 20 percent more than nonfederal investigators, whereas federal corrections officers earn about 11 percent more.

Table 6.

Estimated Federal Earnings Differentials by Region After Adjusting for Law Enforcement Officers' Personal and Job Characteristics

(Percent)

	Police Officers	Detectives and Criminal Investigators	Corrections Officers	Police Supervisors	Corrections Supervisors
Nationwide					
Adjusted	3.7	18.6	10.9	2.6 [a]	25.4
Nonadjusted	9.3	33.3	9.5	7.2	26.4
Midwest					
Adjusted	-1.7 [a]	20.9	18.4	16.5	20.7
Nonadjusted	4.9	48.5	19.4	14.1	40.1
Northeast					
Adjusted	-7.1	-0.6 [a]	-1.1 [a]	-10.8	17.7
Nonadjusted	-1.0	12.2	-4.0	-16.1	6.1
South					
Adjusted	12.8	33.5	18.0	15.8	35.1
Nonadjusted	29.2	62.6	23.2	34.8	51.1
West					
Adjusted	-1.8 [a]	9.7	4.4	-13.9	14.1
Nonadjusted	-1.8	15.2	6.3	-8.0	5.4

Source: Congressional Budget Office using data from the 2000 decennial census.

Notes: The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings.

The adjustment removed the effects of officers' personal and job characteristics (specifically, education, experience, gender, race, marital status, veteran status, working a nonstandard shift, usual hours worked, number of weeks worked in 1999, and geographic location).

a. The estimate is not statistically different from zero at the 90 percent level of confidence.

CBO found the largest adjusted differential—about 25 percent—for federal corrections supervisors.

The varying size of the differences among the categories may be partly explained by differences in the federal and nonfederal jobs within each category. That is, although the regression controlled for measurable individual differences, differences in skills and job requirements may remain that cannot be measured in CBO's analysis. For instance, the large earnings differentials found for corrections supervisors may reflect the fact that federal supervisors are responsible for larger facilities than those their state and local counterparts oversee. Additionally, the differences between federal and nonfederal investigators suggest that a number of those federal jobs require more specific expertise not related to law enforcement than the state and local jobs generally demand—for many federal investigators, law enforcement is a second career. (However, controlling for education will in part take that factor into account.) In addition, inherent differences between federal and nonfederal investigative jobs in their duties and responsibilities—which the regression cannot control for—may lead to pay differences. Thus, the same officer might be paid less by a state and local government than by the federal government because of differences in the jobs' demands.

Another important factor that may affect earnings comparisons and that this analysis does not include is differences in employment benefits. If the federal government provides less than state and local employers offer in retirement benefits, leave allowances, and health benefits, for

example, that difference might help explain the comparatively higher level of annual wages and salaries that federal law enforcement officers receive. (See the brief discussion of total compensation in Summary Box 1 on page viii.)

National average earnings differentials mask substantial regional differences (see Table 6). For instance, the finding that federal police officers earn about 4 percent more than state and local officers is driven in large part by the differential in the South, where federal police officers earn 13 percent more than nonfederal officers. By contrast, in the other three regions, state and local police officers earn more than their federal counterparts.

Results for Selected Localities

The significant geographic differences suggested above between the wage earnings of federal law enforcement officers and those of state and local officers may be further explored by separately considering various metropolitan areas in which officers work. CBO separately analyzed the adjusted federal earnings differentials for police officers, detectives and criminal investigators, and corrections officers for each metropolitan area for which its sample included 20 or more federal officers (see Table 7).[30] Those metropolitan areas correspond to federal pay localities. The effect of CBO's statistical adjustment varied by locality. In most localities, the adjusted differential was smaller than the unadjusted differential. In a few others, the difference in earnings between federal and nonfederal law enforcement officers increased after adjusting for individuals' backgrounds.

CBO's analysis suggested a different picture for police officers than for detectives and criminal investigators. In some areas, federal police officers earned less than state and local police officers, although in most, no measurable difference was apparent. Similarly, CBO found no evidence that federal corrections officers were paid more or less than nonfederal corrections officers in four of the six localities studied. By contrast, federal detectives in most locations apparently earned more than state and local detectives.

30. The samples for police officers, detectives and criminal investigators, and corrections officers were sufficiently large to permit that type of analysis. In addition, because the metropolitan area estimates were independent of one another, the marginal effects of the human capital and demographic factors were allowed to differ by location.

Police Officers. In some major metropolitan areas, federal police officers earn less than their state and local counterparts after an adjustment for human capital factors. According to CBO's estimates, in Los Angeles, New York, and San Diego, federal police officers earned 11.4 percent, 11.3 percent, and 7.5 percent less, respectively. CBO also found that police officers in Atlanta, Boston, Chicago, and San Francisco earned less than their nonfederal counterparts; however, those estimates were not statistically significant. (That is, there was not enough evidence to conclude that federal police officers in those areas were paid less than comparable state and local officers.) Federal police officers stationed in areas outside of the 31 federal pay localities that coincide with metropolitan areas—that is, officers stationed in mostly rural areas that fall into the "rest of U.S." federal locality-pay area—earned 11.2 percent more than state and local police officers in those locations, in CBO's estimation. In the other metropolitan areas that CBO analyzed, federal police officers earned more than nonfederal officers, but except for Washington, D.C., the estimated difference between earnings was not statistically significant.

Detectives and Investigators. Federal detectives and criminal investigators in most localities earned more than their state and local counterparts, and in some areas, the differences were large. Estimated differences that were statistically significant ranged from 43.8 percent for Atlanta to 19.1 percent for Boston. In Philadelphia, however, federal investigators earned 13.8 percent less than nonfederal investigators, and that differential was also statistically significant.

Corrections Officers. For this job category, CBO found that in the New York locality area, federal officers were paid less than nonfederal officers (the percentage difference was -10.9 percent). By contrast, in the "rest of U.S." locality-pay area, federal officers were paid about 11 percent more than state and local officers.

Explaining Differences That Remain After CBO's Adjustments

CBO's analysis to this point has revealed mixed results after controlling for individuals' personal and job characteristics. However, large federal earnings differentials remain for some law enforcement jobs in some locations—and especially for detectives and criminal investigators. Those results have several possible interpretations. Some observers might point to the inadequacies of the analysis: CBO was unable to include the effects of some important de-

Table 7.

Estimated Federal Earnings Differentials in Selected Large Localities After Adjusting for Officers' Personal and Job Characteristics

Locality	Differential (Percent)		Federal Sample Size	Total Sample Size
	Adjusted	Unadjusted		
Police Officers				
Atlanta	-0.2	7.3	22	346
Boston	-6.9	-10.4	32	502
Chicago	-4.4	8.9	24	914
Dallas	8.8	18.8	20	465
Los Angeles	-11.4 [a]	-5.1	60	1,256
New York	-11.3 [a]	-2.9	96	2,769
Philadelphia	10.0	19.1	20	582
San Diego	-7.5 [a]	-5.8	87	305
San Francisco	-5.3	2.8	28	583
Washington, D.C.	5.7 [a]	14.5	234	990
Rest of U.S.[b]	11.2 [a]	18.5	877	14,048
Detectives and Criminal Investigators				
Atlanta	43.8 [a]	58.2	31	96
Boston	19.1 [a]	16.4	27	56
Chicago	11.7	23.3	56	152
Dallas	42.5 [a]	57.0	32	99
Detroit	15.1	16.2	24	57
Houston	41.3 [a]	47.8	25	73
Los Angeles	4.6	7.7	63	261
New York	-2.8	7.1	128	620
Philadelphia	-13.8 [a]	14.2	41	136
San Diego	9.9	9.1	31	72
San Francisco	1.6	4.9	36	105
Seattle	26.6 [a]	46.5	20	72
Washington, D.C.	22.9 [a]	35.3	168	250
Rest of U.S.[b]	30.5 [a]	47.2	507	2,232
Corrections Officers				
Dallas	6.6	25.3	24	102
Los Angeles	-7.4	3.9	36	348
New York	-10.9 [a]	-11.2	65	1,059
Philadelphia	-9.9	-5.7	31	322
Washington, D.C.	8.5	14.9	27	348
Rest of U.S.[b]	11.3 [a]	13.7	722	12,638

Source: Congressional Budget Office using data from the 2000 census.

Notes: A locality was selected for analysis if CBO's sample indicated 20 or more federal officers in that metropolitan area. The earnings differential is the percentage difference between federal officers' earnings and state and local government officers' earnings.

The adjusted differentials remove the effects of officers' personal and job characteristics (specifically, education, experience, gender, race, marital status, veteran status, working a nonstandard shift, usual hours worked, number of weeks worked in 1999, and geographic location).

a. The estimate is statistically different from zero at the 90 percent level of confidence.

b. The federal locality-pay area designated by the Office of Personnel Management that comprises those portions of the continental United States that are outside the other 31 locality-pay areas.

terminants of pay. Others might suggest that federal law enforcement jobs, especially those of detectives and criminal investigators, are so different from their counterparts at the state and local levels as to preclude meaningful analysis of earnings comparisons.

One factor that might be contributing to the earnings differentials is differences in the value of employment benefits that federal and nonfederal law enforcement officers receive. Employers who provide more compensation in the form of such benefits may need to pay less in wages and salaries to attract qualified recruits. Thus, a positive federal differential could be explained in part by a relatively less attractive federal benefit package. Differences between the pay structures of federal and nonfederal employers (for example, the presence or absence of unrestricted overtime pay and incentive payments) could have an effect on federal differentials, but many of those factors should already be taken into account by the use of the census's annual earnings measure.[31] (Some benefits, such as uniform allowances, are not included in the census measure, but their value is small and unlikely to affect the statistical analysis.)

Differences between federal and state and local retirement benefits have the potential to exert a large effect. The value of the benefits offered by nonfederal employers (for instance, some states have sizable public employee retirement benefit packages) could help explain some of the geographic diversity in federal pay differentials. The remaining unexplained part of the differentials may be in some measure the result of how federal and state and local governments value human capital—either because of inherent differences in the type of work that a job requires or differences in the type of education or experience necessary to perform it.

Additional analysis of the census data that CBO performed suggests that the federal government tends to value education, advanced degrees, and work experience more than state and local governments do. As a result, a federal law enforcement officer may earn a higher return on the investment he or she made in education than an otherwise similar nonfederal law enforcement officer may.[32] Further, the earnings of federal law enforcement officers in general rise faster with experience than those of nonfederal officers.[33]

31. That measure includes wages, salaries, commissions, bonuses, and tips from all jobs.

32. See the supplemental data from CBO's analysis, available at CBO's Web site (www.cbo.gov).

33. Ibid.

Appendix: CBO's Analytic Method

Raw differences in the pay of law enforcement officers who perform jobs that are relatively similar but who are employed at different levels of government (federal versus state or local) may in part reflect differences in the socioeconomic backgrounds of those officers. To clarify the effect of the employing agency on those pay differentials, the Congressional Budget Office (CBO) adjusted those differences as suggested by the human capital theory of wage determination. Consider the following regression model:[1]

$$\log y_i = \alpha + X_i b + \beta F_i + \sum_k \phi_k S_{ik} + \sum_j \delta_j L_{ij} + \varepsilon_i$$

where $\log y_i$ gives the natural logarithm of annual earnings from wages of law enforcement officer i in 1999; X_i is a vector of socioeconomic characteristics (described below); F_i is an indicator variable set to equal one if the worker is a federal employee; and L_{ij} and S_{ik} are indicators set to equal one if the officer is in locality j or state k, respectively. The main parameter of interest in CBO's study was β, which gives the difference in log earnings between federal officers and state and local officers after controlling for the influence of the other variables. A positive number represents a pay difference that favors federal officers. To estimate the percentage of that federal differential, CBO exponentiated β and subtracted one.

The decennial census contains information about the metropolitan areas in which law enforcement officers work. CBO used areas that corresponded to the federal government's locality-pay areas to create 31 locality indicator variables. (Areas outside those 31 localities were assigned to the "rest of U.S." locality area.) There were some exceptions: in a number of cases, the census identified an area as being within two different metropolitan areas. To control for the presence of those cases, CBO included special indicators. The regression model also included locality and state effects (L_{ij} and S_{ik}), which took into account factors that have the same effect on the level of earnings of each officer within a locality or state—for example, the value of fringe benefits, the effect of local competition for law enforcement services, and the local cost of living.

The variables in X_i that CBO used in its analysis were age, gender, ethnicity, marital status, education, years of experience, veteran status, a night-shift indicator, usual hours worked in a week, and number of weeks worked in 1999. The explanatory variables were generally found to have the expected effect on wage earnings as predicted by the empirical literature on wage determination (see Table A-1).[2] The justification for including each variable follows.

Education

Human capital theory suggests that individuals are paid according to their value to employers, which is indicated by such characteristics as their level of education.[3] An individual will forgo earnings and pay tuition to obtain more schooling to the extent that he expects to be compensated with sufficiently higher lifetime earnings. In addition, workers who are more highly educated must be sufficiently more productive to justify a higher wage than otherwise similar workers receive.

Law enforcement agencies differ in their education requirements. For police officers, some state and local agencies require only a high school diploma, whereas other law enforcement jobs demand a college degree. Officers

1. The model was estimated using CBO's pooled sample of federal and nonfederal (state and local) law enforcement officers and the ordinary least squares method available in STATA statistical software.

2. Table A-1 presents selected findings; the full regression results are available as supplemental data at CBO's Web site (www.cbo.gov).

3. That premise implies that education increases the productivity of the average worker. People may also obtain education to signal to employers that they are highly skilled.

Table A-1.

Annual Log Wage Earnings Regressions for Selected Law Enforcement Job Categories

Covariates[a]	Police and Sheriff's Patrol Officers	Detectives and Criminal Investigators	Corrections Officers
Federal Employee	0.037	0.170	0.104
	(0.010)	(0.014)	(0.012)
Gender	-0.119	-0.182	-0.108
	(0.007)	(0.013)	(0.006)
Black	-0.026	-0.043	0.020
	(0.007)	(0.019)	(0.007)
Hispanic	-0.005	-0.007	-0.009
	(0.008)	(0.018)	(0.010)
Some College But No Degree	0.116	0.105	0.052
	(0.006)	(0.019)	(0.005)
Associate's Degree	0.151	0.129	0.067
	(0.007)	(0.022)	(0.008)
Bachelor's Degree	0.258	0.235	0.140
	(0.007)	(0.019)	(0.009)
Master's Degree	0.347	0.274	0.172
	(0.014)	(0.025)	(0.032)
Professional/Doctoral Degree	0.332	0.352	0.243
	(0.033)	(0.040)	(0.053)
Experience	0.043	0.049	0.030
	(0.001)	(0.003)	(0.001)
Experience Squared	-0.001	-0.001	-0.001
	(0)	(0)	(0)
Married	0.064	0.044	0.036
	(0.005)	(0.012)	(0.005)
Veteran	-0.020	-0.033	0.004
	(0.005)	(0.012)	(0.006)
Constant	8.614	9.225	8.778
	(0.087)	(0.255)	(0.086)
Number of Observations	26,159	4,732	17,117
Adjusted R-Squared	0.4458	0.466	0.458

Source: Congressional Budget Office using data from the 2000 census.

Note: Standard errors appear in parentheses.

a. The following covariates were included in CBO's analysis but are not shown in the table: usual hours worked, number of weeks worked in 1999, and working a nonstandard shift. Among the set of educational indicators, "high school or less" is the omitted category.

with more formal education may be relied on to fill leadership roles or be placed in more technical jobs. (For instance, investigative agencies often hire individuals with degrees at the master's level or higher.) Over the long run, law enforcement officers who attained more schooling would be expected to earn more than less educated officers.

Experience

Workers become more proficient at a specific job the longer they perform it (that is, they learn on the job). In the course of their careers, law enforcement officers receive both formal and on-the-job training that over time improves their skills. To retain well-trained officers, agencies must compensate them more for the experience they gain. For example, before police trainees are hired permanently, they are paid a lower rate while they attend a training academy. After such training, officers receive a pay raise and over their careers can expect increases in their earnings as they advance. The coefficient in the regression corresponding to years of experience should be positive, other things being equal.

Military Service

Various aspects of military training, such as proficiency with firearms, allow military service members to make a relatively easy transition to a career in law enforcement. Moreover, in the federal sector, military service is counted as federal employment, and service members with three or more years of continuous military service are given preferential treatment in filling federal vacancies. To the extent that skills are transferable from the military to civilian law enforcement, the coefficient related to military service should be positively related to the wages of law enforcement officers. Yet studies of the pay of military retirees who enter the civilian labor market find that retirees initially are paid lower salaries than otherwise similar nonveterans.[4]

4. For a discussion of that literature, see David S. Loughran, *Wage Growth in the Civilian Careers of Military Retirees* (Santa Monica, Calif.: RAND Corporation, 2002), reprinted in *Other Measures of Financial Well-Being,* vol. 5 of Department of Defense, *Report of the Ninth Quadrennial Review of Military Compensation* (March 2002), pp. 293-350.

Nonstandard-Shift Indicator

It is common in law enforcement for agencies to pay an overtime differential for work after 6 p.m. and before 6 a.m. CBO thus included an indicator of such work in its analysis to control for the possibility that those jobs are systematically different from daytime law enforcement work.

Usual Hours and Weeks Worked

The census data include usual hours worked in a week and the number of weeks for which an officer received wages, including paid time off, during 1999. CBO included those indicators as control variables in the earnings regressions to adjust for part-time work, unpaid leave, and partial-year employment.

Demographics

In many empirical labor-market studies, demographic factors (such as race, gender, and marital status) have been found to be correlated with wage earnings. Thus, in trying to isolate the effects of federal employment on wages and salaries, CBO controlled for demographic factors along with the variables discussed above. Such factors may influence results either on the demand side or the supply side. (For instance, demographic factors may be correlated with individuals' tastes and preferences and consequently with their choice of career and employer.)

One approach in the labor economics literature is to treat any differences in earnings that are attributable to the effects of race or gender—after controlling for other human capital factors—as reflecting labor-market discrimination. The validity of that interpretation is open to debate, particularly when it is not possible to accurately control for all aspects of human capital. CBO's analysis was not intended to measure any labor-market discrimination but rather to control for demographic factors and thus isolate the effect on individuals of being employed at the federal level of government. For comparison purposes, the results of the basic regression models that exclude those demographic factors are available as supplemental data at CBO's Web site (www.cbo.gov).