

GAO

Report to the Committee on Education  
and the Workforce, U.S. House of  
Representatives

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October 2012

FEDERAL  
EMPLOYEES'  
COMPENSATION ACT

Analysis of Proposed  
Program Changes



G A O

Accountability \* Integrity \* Reliability

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## Abbreviations

CPDF	Central Personnel Data Files
COLA	cost of living adjustments
FECA	Federal Employees' Compensation Act
FEHB	Federal Employees Health Benefits
FERS	Federal Employees Retirement System
GS	General Schedule
iFECS	Integrated Federal Employees' Compensation System
MBR	Master Beneficiary Record
OWCP	Office of Workers' Compensation Programs
TSP	Thrift Savings Plan
USPS	U.S. Postal Service

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**United States Government Accountability Office**  
Washington, DC 20548

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October 26, 2012

The Honorable John Kline  
Chairman  
The Honorable George Miller  
Ranking Member  
Committee on Education and the Workforce  
United States House of Representatives

The Honorable Tim Walberg  
Chairman  
The Honorable Lynn Woolsey  
Ranking Member  
Subcommittee on Workforce Protection  
Committee on Education and the Workforce  
United States House of Representatives

In 2010, the Federal Employees' Compensation Act (FECA) program paid \$1.9 billion in cash benefits to federal workers who sustained injuries or illnesses while performing federal duties.<sup>1</sup> The U.S. Department of Labor (Labor) administers FECA and bases FECA benefits on an employee's wages at time of injury and whether the employee has eligible dependents. In addition, consideration is given to the beneficiary's ability to work after the injury.<sup>2</sup> Specifically, beneficiaries unable to return to work—total disability beneficiaries—who have an eligible dependent are compensated at 75 percent of gross wages at the time of injury and those without an eligible dependent are compensated at 66-2/3 percent. These benefits are adjusted for inflation and are not subject to age restrictions. Some policymakers are concerned about the level of FECA benefits, especially compared to the retirement benefits under the Federal

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<sup>1</sup>The receipt of FECA benefits is generally the exclusive remedy for being injured on the job and a federal employee is prohibited from suing his or her employer or recovering damages for such injury under another statute.

<sup>2</sup>Beneficiaries who are determined to have some wage earning capacity—partial disability beneficiaries—are compensated based on the difference between wages at the time of injury and wages that Labor determines they are able to earn. Those with a dependent are compensated at 75 percent of this difference and those without an eligible dependent at 66-2/3 percent of the difference.

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Employees Retirement System (FERS), which generally covers employees first hired in 1984 or later.

A proposal by Labor to revise FECA includes the following changes to the benefits for future total and partial disability beneficiaries:<sup>3</sup>

- Set initial FECA benefits at a single rate (70 percent of applicable wages at time of injury), regardless of whether the beneficiary has eligible dependents.<sup>4</sup>
- Convert FECA benefits to 50 percent of applicable wages at time of injury—adjusted for inflation—once beneficiaries reach the full Social Security retirement age.

To consider the effects of these proposed changes, we evaluated (1) What would be the effect of Labor's proposal to compensate total disability FECA beneficiaries at a single rate regardless of having dependents? and (2) How would FERS and total disability FECA benefits in retirement compare under current FECA and Labor's proposed FECA revision?

To address our objectives we conducted simulations to compare (1) FECA benefits with actual take-home pay in 2010, and (2) FECA benefits with actual FERS benefits in 2010.<sup>5</sup> We limited the analysis in this report to FECA beneficiaries, federal workers, and federal annuitants covered under FERS.<sup>6</sup> This report does not cover employees or FECA beneficiaries who worked at the U.S. Postal Service (USPS)—they will be covered in an upcoming GAO report. We examined the effects of the proposed FECA revisions on those FECA beneficiaries who were

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<sup>3</sup>The proposal analyzed is Labor's "Federal Injured Employees' Reemployment Act of 2010" technical assistance discussion draft, January 13, 2011. The proposed changes would not affect the benefits of current FECA recipients.

<sup>4</sup>Generally, the proposal decreases benefits for beneficiaries with dependents and increases benefits for those without dependents compared to the current program.

<sup>5</sup>The analyses were based on snapshots in 2010 and did not consider any cumulative effects of the proposed FECA revisions on lifetime income.

<sup>6</sup>Partial disability beneficiaries—who have some capacity to earn wages—were beyond the scope of this work, in part because Labor does not keep data about their total income (including any earnings) in an electronic database.

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considered to be totally disabled, i.e., they had no wage earning capacity. FECA benefits were not designed to increase at a rate comparable to pay increases an individual could have received through step increases or promotions (career growth) if he or she had never been injured. However, our analysis factors in career growth to provide a comparison between FECA benefits and the take-home pay the beneficiary could have received, absent an injury.

We considered certain subgroups, including those based on the presence of a dependent, the extent of missed income and career growth (measured by General Schedule (GS) level ranges: 1-4, 5-8, 9-12, and 13-15),<sup>7</sup> GS level at time of injury (measured by GS level ranges), and years of service. To conduct our simulations we used 2010 data from the Integrated Federal Employees' Compensation System (iFECS), 1988-2010 data from the Central Personnel Data Files (CPDF),<sup>8</sup> 2010 FERS annuitant data; 2000-2012 Thrift Savings Plan (TSP) data; and Social Security benefit data from the Master Beneficiary Record (MBR). We determined that the data we used were sufficiently reliable for the purposes of the report.

To consider the effect of compensating total disability FECA beneficiaries at the single rate of 70 percent—which we refer to as “revised FECA”—we conducted a simulation that compared the extent to which FECA and the proposed revision would replace a beneficiary’s take-home pay. Since we cannot observe a FECA beneficiary’s missed career path and missed wages, we analyzed a set of federal workers who had never been injured and who were employed at the end of fiscal year 2010. We matched recent total disability FECA beneficiaries to these federal workers in order to ensure the two sets were similar.<sup>9</sup> Our match was based on work-related characteristics—such as employing agency and blue collar versus white collar classification—as well as on personal characteristics that may be important in terms of career and wage growth—such as date and age

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<sup>7</sup>GS ranges were based on income (2010 dollars): GS 1-4 (<\$27,431), GS 5-8 (\$27,431-\$41,562), GS 9-12 (\$41,563-\$71,673), and GS 13-15 (≥\$71,674).

<sup>8</sup>The analysis in this report is limited to those agencies covered by the CPDF. The CPDF does not cover all civilian federal workers, for example, USPS is not represented in the CPDF. Forty-three percent of FECA beneficiaries in 2010 worked for USPS.

<sup>9</sup>For more details on the similarity of the matched sets of FECA beneficiaries and federal workers, see appendix II.

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when starting their federal careers, as well as wage histories prior to the injury. Once we matched the two sets, we simulated injuries on the uninjured federal workers, timed to coincide with the corresponding FECA beneficiary's injury. From that point forward, we only considered the matched set of federal workers—and not the FECA beneficiaries—in our analysis.<sup>10</sup> Based on the federal workers' actual wages at the time of the simulated injury, we calculated their hypothetical FECA and revised FECA benefits, which we simulated based on gross wages at the time of injury. We applied cost of living adjustments to project the initial benefits to 2010. Having determined the 2010 FECA benefits (simulated) and 2010 earnings (actual) for each of these federal workers, we were able to calculate the proportion of 2010 take-home pay<sup>11</sup> replaced by the simulated FECA benefit, or wage replacement rate.<sup>12</sup>

By using 2010 take-home pay, we factor missed career growth into the wage replacement rates we calculate. Although, as mentioned above, FECA was not designed to compensate for missed career growth, we used a matching methodology that allows us to measure the adequacy of benefits with respect to the counterfactual. Specifically, we capture the extent to which FECA beneficiaries are able to maintain the standard of

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<sup>10</sup>We focus solely on the federal worker because doing so is more precise than comparing the benefit of the FECA beneficiary to the earnings of the matched federal worker. By considering only the federal worker, we are able to capture the wage replacement rate, the proportion of take-home pay replaced by FECA, in a way that meaningfully accounts for career growth while avoiding undue imprecision in wage replacement rates that could be attributed to salary differences between the federal worker and the matched FECA beneficiary.

<sup>11</sup>We defined take-home pay as gross wages reduced by mandatory retirement contributions and federal and state income taxes (assuming a single dependent) and did not take discretionary deductions into account.

<sup>12</sup> Policymakers can target wage replacement rates; however, there is no consensus on the appropriate wage replacement rate for workers' compensation programs, such as FECA. Such decisions involve balancing the goals of benefit adequacy and incentives to return to work. In 1972, the National Commission on State Workmen's Compensation Laws endorsed a move towards 80 percent of spendable pay or take-home pay. A 1998 GAO report on FECA also cited this 80 percent benchmark; see GAO, *Federal Employees' Compensation Act: Percentages of Take-Home Pay Replaced by Compensation Benefits*, [GAO/GGD-98-174](#) (Washington, D.C.: August 1998). In 2004, a report by the National Academy of Social Insurance used two-thirds of gross wages as a target replacement rate for workers' compensation programs. See H. Allan Hunt, editor, *Adequacy of Earnings Replacement in Workers' Compensation Programs, A Report of the Study Panel on Benefit Adequacy of the NASI Workers' Compensation Steering Committee* (Washington D.C.: 2004).

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living they would have had absent an injury. Alternatively, one could use a method that does not account for missed career growth. For instance, our 1998 FECA report calculated wage replacement rates by comparing FECA benefits to take-home pay at the time of injury, adjusted for inflation. That approach measured the degree to which beneficiaries were able to maintain the standard of living they would have had at the time of injury.<sup>13</sup> The availability of additional data and the improved methods employed in our current analysis allow us to present an assessment of the adequacy of benefits that includes career growth.<sup>14</sup>

Similarly, to compare FERS to total disability FECA benefits, we again relied on a matching technique, and conducted our analysis for both current FECA and the proposal to reduce benefits at retirement age, which we refer to as “reduced FECA.” Since we cannot observe the FERS benefits a FECA beneficiary would have received absent an injury, we matched recent total disability FECA beneficiaries with similar FERS annuitants to compare outcomes. This approach captures retirement benefits in the counterfactual case of having never been injured and is consistent with the approach we used in the first objective of this report and in our February 2012 FECA report, which compared FECA benefits to retirement benefits under the Civil Service Retirement System.<sup>15</sup> As before, we simulated injuries for the matched set of FERS annuitants and calculated their hypothetical FECA benefits—at current FECA compensation rates and the proposed reduction to 50 percent of applicable wages, once a beneficiary reaches retirement age.<sup>16</sup> We projected these simulated FECA benefits to 2010 and compared these FECA benefits, supplemented by a TSP annuity, to the actual FERS

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<sup>13</sup>See [GAO/GGD-98-174](#). In part because of the data available at the time of the report, [GAO/GGD-98-174](#) calculated wage replacement rates that did not account for missed career growth; instead, it accounted for cost of living adjustments for federal workers and FECA beneficiaries. The report found that, on average, FECA benefits replaced over 95 percent of wages at the time of injury for beneficiaries, including both postal and non-postal beneficiaries.

<sup>14</sup>For additional discussion of the merits of accounting for missed career growth in assessing the adequacy of benefits, see Hunt, 2004.

<sup>15</sup>See GAO, *Federal Employees’ Compensation Act: Benefits for Retirement-Age Beneficiaries* [GAO-12-309R](#) (Washington, D.C.: February 6, 2012).

<sup>16</sup>For further details on how we conducted the match and subsequent analysis, see appendix II.



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benefit packages.<sup>17</sup> The FERS benefit package includes the FERS annuity, Social Security benefits, and TSP annuities.<sup>18</sup> However, FERS had only been in place 26 years in 2010, so we do not capture a fully mature system.<sup>19</sup> Over time, FERS benefits would likely increase as some annuitants would have longer federal careers, so our calculation likely understates future FERS benefits. Since Labor's proposal would only affect future FECA beneficiaries, we conducted a final simulation to account for a mature FERS. In this simulation, we examined the effects of missing part of a 30-year career due to injury. Specifically, we used the same annuitants as above and extended their work histories to cover a 30-year period, which allowed us to estimate retirement benefits based on a 30-year career given their wage histories. Again we simulated injuries and calculated hypothetical FECA and reduced FECA benefits.<sup>20</sup>

We conducted this performance audit from January to October 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

On July 3, 2012, and September 19, 2012, we briefed your staff on the preliminary results of this study; this report formally conveys the information provided in those briefings (see app. I for the briefing slides).

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<sup>17</sup>FECA beneficiaries cannot receive FECA benefits concurrently with the FERS annuity. Further, Social Security benefits attributable to federal service are offset by FECA after retirement.

<sup>18</sup>We assumed that individuals chose a single life TSP annuity that was not adjusted for inflation.

<sup>19</sup>By mature FERS, we mean a retirement system in place at least 30 years to give a full range of income levels and investment growth. Our current data has limited observations on FERS annuitants with more than 25 years of service. Without taking account of the mature system, we understate the future FERS benefit.

<sup>20</sup>We then simulated different scenarios by varying the percentage an individual contributed to the TSP and the rate of growth for TSP balances.

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## Summary of Findings

Under our simulation, compensating all beneficiaries at 70 percent of wages at the time of injury reduced the overall median wage replacement rate—the percentage of take-home pay replaced by FECA—from 80 to 77 percent. In comparing wage replacement rates of those beneficiaries with and without a dependent, we found that beneficiaries with an eligible dependent had a median wage replacement rate that was 3 percentage points greater than that of beneficiaries without a dependent under current FECA. The proposed revision increased the magnitude and reversed the direction of this difference—beneficiaries with an eligible dependent had a median wage replacement rate that was 6 percentage points less than that of beneficiaries without a dependent. With regard to Labor’s proposal to reduce FECA benefits at Social Security retirement age, we found that in 2010, the median FECA benefit package (FECA and TSP) was 32 percent greater than the median current FERS benefit package (FERS, TSP, and Social Security) and that Labor’s proposal would result in the reduced FECA package being 6 percent less than the FERS package. Our final simulation of a mature FERS system—intended to reflect future benefits of federal workers with 30-year careers—found that the median FECA benefit package was on par or 10 percent less than the median FERS retirement benefit package, depending on TSP contributions. Under the mature FERS simulation, the median reduced FECA benefit package was 31 or 35 percent less than the median FERS benefit package, again depending on TSP contributions.

Our results are detailed below:

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## Single Compensation Rate (Revised FECA)

- According to our simulation, compensating all total disability FECA beneficiaries at the revised rate of 70 percent of wages at the time of injury resulted in an overall reduction in the median percentage of take-home pay replaced by FECA. Specifically, under the current program, FECA replaced 80 percent of 2010 take-home pay and under the revision FECA replaced 77 percent. We also considered the effect of the proposal on beneficiaries with eligible dependents in comparison to those without, as the proposal equalizes their compensation rates. We found that current FECA, which compensates beneficiaries with a dependent at a higher rate than those without a dependent (75 versus 66-2/3 percent), replaces 81 and 78 percent of take-home pay for beneficiaries with or without a dependent, respectively. This 3 percent difference in median wage replacement rates is less than the difference in compensation rates in part because FECA benefits are not taxed, whereas wages are. Thus, a worker with dependents would have more tax deductions and

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greater take-home pay—the augmented FECA compensation accounts for this difference to some extent. Equalizing FECA compensation rates does not account for these tax-related differences in take-home pay. Equalizing FECA compensation rates at 70 percent regardless of eligible dependents results in a larger difference in median wage replacement rates between beneficiaries with and without a dependent (76 and 82 percent, respectively).<sup>21</sup>

- In addition, we examined the effects of this proposal on various subgroups and found that compensating all beneficiaries at 70 percent of wages at the time of injury generally reduced median wage replacement rates. However, we found no reductions in any one subgroup that were disproportionate to the overall revision. We did see wide variation in the proportion of take-home pay replaced by FECA (and the proposed revision) within subgroups—wage replacement rates ranged from just over 50 percent to about 90 percent. For example, beneficiaries who missed substantial career and income growth because of their injury had lower median wage replacement rates than those who missed relatively little career and income growth. For those who missed substantial career growth, FECA replaced a smaller proportion of their 2010 take-home pay because the FECA cost of living adjustments do not keep pace with missed GS step increases and promotions. However, FECA was not designed to account for such GS step increases and promotions.

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## Reduction at Retirement Age (Reduced FECA)

- According to our retirement simulation comparing current FECA benefits to FERS benefits, we found that the overall median FECA benefit package (FECA benefits and TSP annuity) was 32 percent greater than the current median FERS retirement benefit package (FERS annuity, TSP annuity, and Social Security). This implies that in retirement, FECA beneficiaries generally had greater income from FECA and their TSP in comparison to the FERS benefits they would have received absent an injury. However, because FERS had only been in place 26 years in 2010, we are not capturing the “mature” FERS benefit—and it is likely that we are understating the potential

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<sup>21</sup>Because actual wage replacement rates for beneficiaries with a dependent may be lower than simulated due to our assumption of a single dependent, the difference in median wage replacement rates between those with and without a dependent may be smaller under FECA and larger under the proposed revision.

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FERS benefit.<sup>22</sup> We also found that under current FECA, median FECA benefit packages were consistently greater than median FERS benefit packages across varying years of service. However, as years of service increase, the gap between the two benefits narrowed. For example, beneficiaries whose total federal career would have spanned less than 10 years had a median FECA benefit that was about 46 percent greater than the corresponding FERS benefit. In contrast, beneficiaries whose total federal career would have spanned 25-29 years had a median FECA benefit that was 16 percent greater than the corresponding FERS benefit. This occurred in large part because FERS benefits increase substantially with additional years of service.

- Reducing FECA benefits once beneficiaries reach retirement age to 50 percent of wages at the time of injury would result in an overall median for the reduced FECA benefit package (reduced FECA plus the TSP) that is about 6 percent less than the median FERS benefit package. This implies that under the proposed reduction, FECA beneficiaries would have similar income from their FECA benefit package in comparison to their foregone FERS benefit. In addition, reduced FECA benefits were generally less than FERS benefits across varying years of service.<sup>23</sup> However, as years of service increase, the gap between the two benefits widens. For example, beneficiaries whose total federal career would have spanned less than 10 years had a median reduced FECA benefit that was about 2 percent greater than the corresponding FERS benefit. In contrast, beneficiaries whose total federal career would have spanned 25-29 years had a median reduced FECA benefit that was 19 percent less than the corresponding FERS benefit.
- In our simulation of a “mature” FERS coupled with the assumption that individuals have 30-year federal careers, we found that the median FECA benefit packages were either on par with or less than median FERS benefit packages—depending on the amount an individual contributes toward their TSP account for retirement.

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<sup>22</sup>Because few people in our dataset had more than 25 years of federal service at the time of retirement, we do not capture those who would choose to work 30 or more years in the federal government before retiring.

<sup>23</sup>In other words, under the proposed reduced FECA, beneficiaries would have less income in retirement than they would have had absent an injury.

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Specifically, under a scenario where there is no employee contribution and the employing agency contributes 1 percent to TSP, the median FECA benefit package is about 1 percent greater than the median FERS benefit package. However, under a scenario where each employee contributes 5 percent—and receives a 5 percent agency match—the median FECA benefit package is about 10 percent less than the median FERS benefit package. Using the same simulation, we found that the median reduced FECA benefit package was less than the median FERS benefit package—regardless of the simulated contributions to TSP accounts.<sup>24</sup> Specifically, under a scenario where there is no employee contribution—and a 1 percent agency contribution—the median reduced FECA benefit package is about 31 percent less than the median FERS benefit package. Under a scenario where each employee contributes 5 percent—and receives a 5 percent agency match—the median reduced FECA benefit package is about 35 percent less than the FERS benefit package.

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## Concluding observations

FECA continues to play a vital role in providing compensation to federal employees who are unable to work because of injuries sustained while performing their federal duties. However, concerns about the level of FECA benefits have increased interest in reforming the program. While reducing the level of benefits could be achieved, doing so would have implications for the adequacy of benefits, both during a beneficiary's foregone working years and after the beneficiary reaches retirement age.

Equalizing FECA compensation rates between those with and without eligible dependents could reduce benefits for some beneficiaries; however, doing so results in disparity in the degree to which beneficiaries with dependents can maintain their standard of living relative to those without an eligible dependent. This disparity is attributable to differences in tax deductions for dependents and would be compounded over time. An alternative approach might be an across-the-board reduction in FECA compensation, which could keep replacement rates relatively equal

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<sup>24</sup>While our simulation assumes 30 years of federal service and captures the effects of being injured at some point within a 30-year federal career, it does not reflect the actual federal workforce, where careers may not span 30 years. To the extent that federal workers work less than 30 years, we overestimate the FERS benefit package. To the extent that they work more than 30 years, we underestimate the FERS benefit package. On balance, with some working more and some working less, it is uncertain whether our results underestimate or over estimate the actual outcome.

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between beneficiaries with and without dependents. Yet this type of approach could adversely affect the adequacy of benefits for those with relatively low wage replacement rates, such as beneficiaries who missed substantial career growth. However, the FECA benefit structure was not designed to take missed career growth into account.

Once FECA beneficiaries reach retirement age, their FECA benefit package (FECA benefit and TSP annuity) may be greater than the current FERS benefit package—and reducing FECA at retirement as Labor has proposed would bring FECA more in line with current FERS. However, as any changes to FECA would affect beneficiaries in the future, it is important to note that as FERS matures over time, our analysis suggests that differences between the median FECA benefit package and the FERS benefit package diminish. Specifically, our simulation showed that the FECA benefit package may be on par or less than the FERS benefit package, and the reduced FECA benefit package would be substantially less than FERS. A clearer picture of how FECA and FERS will actually differ will be possible as FERS matures.

In short, there are no quick fixes. Our analyses demonstrated that there are policy levers that can be adjusted in order to achieve reform. However, consideration needs to be given to the impact the change will have on the adequacy of benefits and the ensuing fairness across beneficiaries, both at the time of injury and over the lifetime of the beneficiary. Reducing FECA benefits could have a substantial impact over time on individuals who cannot work and may have limited options to replace income in response to benefit reductions.

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We provided a draft of this report to the Department of Labor, the Office of Personnel Management, the Social Security Administration, and the Thrift Savings Investment Board, and they did not have any comments.

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As agreed with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies of this report to relevant congressional committees, the Secretary of Labor, the Director of the Office of Personnel Management, the Commissioner of Social Security, the Executive Director of the Thrift Savings Board, and other interested parties. In addition, the report will be made available at no charge on the GAO web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-7215 or [sherrilla@gao.gov](mailto:sherrilla@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.



Andrew Sherrill  
Director  
Education, Workforce, and  
Income Security Issues

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# Appendix I: Federal Employees' Compensation Act

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## **Federal Employees' Compensation Act:** Analysis of Proposed Program Changes

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Briefing to Congressional Staff:  
**Committee on Education and the Workforce**  
**United States House of Representatives**

**July 2012**  
**and**  
**September 2012**





## Introduction

- In 2010, the Federal Employees' Compensation Act (FECA) program paid \$1.9 billion in cash benefits to federal workers who sustained injuries or illnesses while performing federal duties.
- The US Department of Labor (Labor) administers FECA and FECA benefits are generally based on an employee's wages at time of injury and whether the employee has eligible dependents.<sup>1</sup>
- Since FECA benefits are adjusted for inflation and are not taxed or subject to age limitations, some policymakers are concerned about the generosity of FECA benefits, especially compared to the retirement benefits under the Federal Employees Retirement System (FERS), which generally covers employees first hired in 1984 or later.
- A proposal by Labor to revise FECA includes the following changes to the benefits for total and partial disabilities (changes would not affect current FECA recipients):<sup>2</sup>
  - Set initial FECA benefits at a single compensation rate (70 percent of applicable wages at time of injury), regardless of whether the beneficiary has eligible dependents.<sup>3</sup>
  - Convert FECA benefits to 50 percent of applicable wages at time of injury—adjusted for inflation—once beneficiaries reach the full Social Security retirement age.

<sup>1</sup> FECA beneficiaries with eligible dependents receive 75 percent of applicable wages at time of injury; those without dependents receive 66-2/3 percent.

<sup>2</sup> The proposal analyzed is Labor's "Federal Injured Employees' Reemployment Act of 2010" technical assistance discussion draft, January 13, 2011.

<sup>3</sup> Generally, the proposal decreases benefits for beneficiaries with eligible dependents and increases benefits for those without dependents.



## Key Objectives

1. What would be the effect of Labor's proposal to compensate total disability FECA beneficiaries at a single rate regardless of having eligible dependents?
2. How would FERS and total disability FECA benefits in retirement compare under current FECA and Labor's proposed FECA revision?

Scope and Methodology: Scope



## Scope and Methodology

- **This briefing focuses on federal workers covered under FERS, FERS annuitants, and total disability FECA beneficiaries.**
  - Partial disability beneficiaries—who have some capacity to earn wages—were not included in the scope of this work.
  - Workers and beneficiaries at the U.S. Postal Service (USPS) were not included in this work (details on 5).
- **To determine the effects of proposed FECA revisions, we compared (1) simulated FECA benefits for a set of federal workers to their actual earnings in 2010; and (2) simulated FECA benefits to FERS benefits in 2010.<sup>4</sup>**
- **We examined the effects of the proposed FECA revisions on total disability FECA beneficiaries overall, and within subgroups, including those based on the:**
  - Presence of an eligible dependent
  - Extent of missed income and career growth—defined as moving from one GS level range to the next<sup>5</sup>
  - GS level at time of injury (measured by GS level ranges)
  - State tax rates and overall tax liabilities (e.g., exemptions and deductions)

<sup>4</sup> The comparisons focused on 2010 and did not consider any cumulative effects of the proposed FECA revisions on lifetime income.

<sup>5</sup> We defined GS ranges based on income (2010 dollars) as follows: GS 1-4 (<\$27,431), GS 5-8 (\$27,431-\$41,562), GS 9-12 (\$41,563-\$71,673), and GS 13-15 (≥\$71,674).

Scope and Methodology: Data



## Scope and Methodology (cont'd)

- To address the key objectives, we analyzed:
  - 2010 Integrated Federal Employees' Compensation System (iFECS) data
  - 1988 – 2010 Central Personnel Data Files (CPDF)
    - The CPDF does not cover all civilian federal workers; for instance, USPS is excluded—which accounted for 43% of FECA beneficiaries in 2010.
  - 2010 FERS annuitant data
  - 2000-2012 Thrift Savings Plan (TSP) data
  - Social Security benefit data from the Master Beneficiary Record (MBR)
- We determined the data we used to be sufficiently reliable for the purposes of this report.

Scope and Methodology: Objective 1



## Scope and Methodology (cont'd)

- To determine how compensating all beneficiaries at 70 percent of wages at the time of injury would affect beneficiaries, we compared the proportion of take-home pay replaced by FECA under the current program and the proposed revision. Specifically we took the following steps:
  - **We matched recent total disability FECA beneficiaries who worked for agencies represented in the CPDF and were covered under FERS to similar workers who had never been injured and who were employed at the end of fiscal year 2010.**
  - **To simulate FECA benefits for the matched set of federal workers, we timed our simulation of injuries to coincide with the injury for the corresponding FECA beneficiary—and calculated their hypothetical FECA benefits as of fiscal year 2010. We:**
    - Calculated initial FECA benefits as a percentage of gross wages at time of injury under FECA (75 and 66-2/3 percent for beneficiaries with and without an eligible dependent, respectively) and the proposed revision to compensate all beneficiaries at 70 percent.
    - Projected initial benefits to 2010 using the cost of living adjustments (COLA) for FECA.
  - **To compare FECA benefits with actual earnings, we calculated wage replacement rates as the percentage of 2010 take-home pay replaced by simulated 2010 FECA benefits.**
  - **The wage replacement rate, as defined above, captures actual career growth because it compares simulated FECA benefits to actual earnings in 2010.<sup>6</sup>**

<sup>6</sup> Consistent with GAO/GGD-98-174, we defined take-home pay as gross wages reduced by mandatory retirement contributions and federal and state income taxes (assuming a single dependent) and did not take discretionary deductions into account. In part due to a lack of data, the wage replacement rates in GAO-98-174 captured cost of living increases, not career growth. See GAO, *Federal Employees' Compensation Act: Percentages of Take Home Pay Replaced by Compensation Benefits*, GAO/GGD-98-174 (Washington, D.C.: August 1998). For more details on our methodology see appendix II.

Scope and Methodology: Objective 2



## Scope and Methodology (cont'd)

To compare FERS benefits to FECA and the proposed reduction to 50 percent at retirement, we:

- **Matched recent total disability FECA beneficiaries who were at least 55 years old, worked for agencies represented in the CPDF, and were covered under FERS to similar FERS annuitants who were receiving FERS benefits as of June 2010.<sup>7</sup>**
  - We limited our analysis to those who had complete data.
- **To simulate FECA benefits for the matched set of federal annuitants, we timed our simulation of injuries to coincide with the injury for the corresponding FECA beneficiary—and calculated their hypothetical FECA benefits in retirement as of fiscal year 2010. We:**
  - Calculated initial FECA benefits as a percentage of gross wages at time of injury under FECA and projected benefits to 2010; and
  - Annuitized the estimated TSP balances at time of injury.
    - To calculate hypothetical TSP balances, we used the TSP balances of the corresponding FECA beneficiary at the time of his/her separation from the federal workforce (approximately the time of injury).
  - Calculated hypothetical FECA benefits under the proposal to reduce FECA benefits once the beneficiary reaches Social Security retirement age and recalculated FECA as 50 percent of gross earnings at time of injury and projected benefits to 2010.
- **Calculated total FERS benefits of the matched set of FERS annuitants, including:**
  - FERS annuity;
  - Social Security benefit; and
  - Annuitized estimates of TSP balances at the time of separation from the federal government (retirement).
- **Compared FERS benefits to current FECA and the proposed FECA reduction.**
- Since FERS is not yet a mature system, we also simulated a mature system consisting of 30 years of federal service, using the work histories of matched FERS annuitants.<sup>8</sup>

<sup>7</sup> We assumed that Social Security benefits were attributable to federal service and therefore offset by FECA. We did not have data on non-federal employment, thus we did not include any additional Social Security benefits. This results in an underestimate of retirement income for FECA beneficiaries.

<sup>8</sup> By mature FERS, we mean a retirement system in place at least 30 years to give a full range of income levels and investment growth. Our current data has limited observations on FERS annuitants with more than 25 years of service. Absent a mature system, we underestimate the FERS benefit.

## Background



# How FECA Works

- Labor's Division of Federal Employees' Compensation in the Office of Workers' Compensation Programs (OWCP) administers the FECA program with a goal of having claimants recover and return to work in a sustained capacity following an injury.
  - OWCP charges agencies for whom injured employees worked for benefits provided. These agencies subsequently reimburse Labor's Employees' Compensation Fund from their next annual appropriation.
- FECA provides cash benefits and other benefits to federal employees who suffer temporary or permanent disabilities resulting from work-related injuries or diseases.
  - Cash benefits include payments for wages lost when employees cannot work because of work-related disabilities due to traumatic injuries or occupational diseases.<sup>9</sup>
  - Other benefits include vocational rehabilitation and medical care for injured workers, including medical expenses associated with the workplace injury.
    - For medical expenses unrelated to this injury, FECA beneficiaries who opt to remain in the Federal Employees Health Benefits (FEHB) plan have the same benefits and premiums as federal workers.
    - OWCP deducts beneficiaries' premiums from FECA benefits and pays the employing agency's premiums.

<sup>9</sup> Cash benefits also include schedule awards for loss of, or loss of use of, a body part or function; death benefits for survivors; and funeral expenses.

Background



## FECA Benefit Calculation

- **FECA benefits for total disability beneficiaries are a proportion of gross wages at the time of injury.**
  - FECA beneficiaries with eligible dependents receive 75 percent; and
  - FECA beneficiaries without dependents receive 66-2/3 percent.<sup>10</sup>
- **Benefits are adjusted annually for cost of living increases and are not taxed.<sup>11</sup>**
- **Total disability beneficiaries include:**
  - those individuals whom OWCP has determined to have little or no reemployment potential based on file reviews.
  - those individuals for whom extended disability is anticipated. These beneficiaries receive total disability benefits while OWCP evaluates the potential for re-employment.

<sup>10</sup> At the time of injury, wage replacement rates are greater than FECA compensation rates. For example, given a dependent and gross wages of 50,000, the FECA benefit is \$37,500 (75%). Assuming 15% taxes, take home pay would be \$42,500, and the wage replacement rate would be 88% (37,500/42,500).

<sup>11</sup> FECA benefits are adjusted using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W), as are Social Security benefits.



Background



## Proposed FECA Revision

- **Labor's proposed "Federal Injured Employees' Reemployment Act of 2010" Technical Assistance Discussion Draft Dated January 13, 2011:**
  - **Covers:** Total and partial disability FECA beneficiaries.
  - **Proposed revisions—which would not affect current FECA beneficiaries—include:**
    - Beneficiaries would no longer receive augmented compensation for having eligible dependents, and the basic rate of compensation for total and partial disability would be set at 70 percent of applicable wages for all beneficiaries;
    - Compensation at full Social Security retirement age would generally be reduced to 50 percent of applicable wages at time of injury—adjusted for inflation—for all beneficiaries; and
    - FECA claimants would not receive continuation of pay for the first 3 days of temporary disability, except when disability would exceed 14 days.<sup>12</sup>

<sup>12</sup> Currently employing agencies are required to pay eligible FECA claimants their regular salary for 45 days to prevent a disruption in pay. In 2006, FECA was amended to require USPS employees to use 3 days of their own accrued sick or annual leave (or leave without pay) before receiving continuation of pay. However, available data does not allow for analysis of any related cost savings that may have resulted from this change.

## Background



# Wage Replacement Rates Are a Measure of the Adequacy of Workers' Compensation Benefits

- Wage replacement rates are used to measure adequacy of benefits.
  - Wage replacement rates that do not account for missed career growth capture the degree to which a beneficiary is able to maintain his or her pre-injury standard of living.
    - FECA and other worker's compensation programs were not designed to account for missed income due to career growth.
  - Wage replacement rates that account for missed income growth capture the degree to which a beneficiary is able to maintain his or her foregone standard of living.
    - Data limitations can preclude calculating wage replacement rates that account for missed income growth; however, doing so provides a more complete story of the comparison between an injured worker and his or her counter-factual of having never been injured.
- Wage replacement rates can be targeted by policy makers.
  - There is no consensus on what wage replacement rate policies should target.
  - In 1972 the National Commission on State Workmen's Compensation Laws endorsed a move towards 80 percent of spendable pay or take-home pay.
    - GAO/GGD-98-174 also cited this 80 percent benchmark.
  - In 2004, a report by the National Academy of Social Insurance used two thirds of gross wages as a target replacement rate for workers' compensation programs.<sup>13</sup>

<sup>13</sup> H. Allan Hunt, editor, *Adequacy of Earnings Replacement in Workers' Compensation Programs, a Report of the Study Panel on Benefit Adequacy of the NASI Workers' Compensation Steering Committee* (Washington, D.C.: 2004).

## Background



# Benefit Ratio

- A benefit ratio compares the benefits of one program to the benefits of another.
- We define the FECA to FERS benefit ratio as:
  - $\text{Benefit ratio} = \frac{\text{FECA Benefit}}{\text{FERS Benefit}}$ 
    - and express it as a percentage.
- If FECA benefits are:
  - Greater than FERS benefits, the benefit ratio is greater than 100.
  - Equal to FERS benefits, the the benefit ratio is 100.
  - Less than FERS benefits, the benefit ratio is less than 100.
- For example:
  - A benefit ratio of 130 means FECA benefits are 30 percent greater than FERS benefits.
  - A benefit ratio of 90 means FECA benefits are 10 percent less than FERS benefits.

## Background



# FERS and the Interaction of FERS and FECA

- **Federal Employee Retirement System Act of 1986 generally covers federal employees initially hired on or after January 1, 1984.**
  - As of September 30, 2009, about 85 percent of the federal workforce was covered by FERS.
- **FERS has three elements:**
  - Social Security
  - FERS basic retirement annuity, which is based on an employee's length of service and highest average basic pay earned for three consecutive years of service.<sup>14</sup>
    - The FERS annuity increases with years of service.
  - TSP
    - Similar to a 401K.
    - Employing agency contributes an amount equal to 1 percent of employees' salary automatically and matches employee contributions up to a maximum agency contribution of 5 percent.
- **FECA beneficiaries:**
  - Receive Social Security benefits; however Social Security benefits attributable to federal service are offset.<sup>15</sup>
  - Do not receive a FERS annuity while receiving FECA.
  - Cannot contribute to the TSP but maintain their pre-injury account balances.

<sup>14</sup> Employees with 20 or more years of federal service who retire at the age of 62 or later accrue annuity benefits at a rate of 1.1 percent for each year of service; most other eligible employees accrue annuity benefits at a rate of 1 percent for each year of service.

<sup>15</sup> FECA offsets the Social Security benefits that are attributable to federal service after a beneficiary reaches Social Security retirement age. Social Security benefits not attributable to federal service are not offset.



## Summary of Key Findings (Objective 1)

- Under our simulation, compensating all beneficiaries at 70 percent of gross wages at the time of injury reduced the overall median wage replacement rate—the percentage of take-home pay replaced by FECA—from 80 percent to 77 percent.
- The proposed revision increased differences between the median wage replacement rates for those beneficiaries with and those without eligible dependents.<sup>16</sup>
- While the proposed revision generally reduced wage replacement rates of beneficiaries in the subgroups we examined, we found no reductions that were disproportionate to the overall reduction in median benefits; however, wage replacement rates varied within the subgroups based on worker characteristics.<sup>17</sup>

<sup>16</sup> Findings in objective 1 are specific to pre-retirement outcomes. Throughout this objective, we refer to the matched set of federal workers as “beneficiaries” when discussing their simulated benefits; and we refer to these same individuals as “workers” when discussing their actual careers.

<sup>17</sup> Subgroups we examined showed variation in the extent of missed income and career growth, GS level at time of injury, and state tax rates.

Finding 1: Wage Replacement

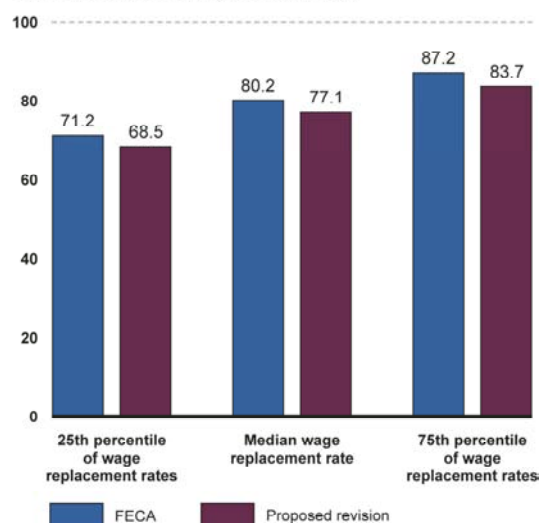


## Proposed Revision Reduced 2010 Median Wage Replacement Rate from 80 Percent to 77 Percent

- Under our simulation, the proposed revision decreased the overall median wage replacement rate by 3.1 percentage points.
- About half of total disability beneficiaries had 2010 wage replacement rates between 71 and 87 percent under FECA and between 69 and 84 percent under the proposed revision.<sup>18</sup>

Figure 1: Wage Replacement Rates Under FECA and the Proposed Revision

Wage replacement rates (n= 5,467 beneficiaries)



Source: GAO analysis of simulation results.

<sup>18</sup> Very few FECA beneficiaries had wage replacement rates over 100 percent—2.2 and 1.3 percent of beneficiaries under FECA and the proposed revision, respectively. Most of these workers had declines in actual income from the time of their simulated injury through 2010. Beneficiaries could have wage replacement rates over 100 percent for other reasons, including FECA cost of living increases and high tax liabilities.

Wage Replacement: Median Rates



## Proposed Revision (cont'd)

- **The overall decrease in the median wage replacement rate was due to the greater proportion of beneficiaries with a dependent and the relative magnitude of the changes.**
  - Those with a dependent (n=4,011) had a 5 percentage point decrease in compensation rate—from 75% to 70% under the proposed revision—and their wage replacement rates decreased, as expected.
  - Those without a dependent (n=1,456) had a 3-1/3 percentage point increase in compensation rate—from 66-2/3% to 70% under the proposed revision—and their wage replacement rates increased, as expected.

**Policy Implication:**

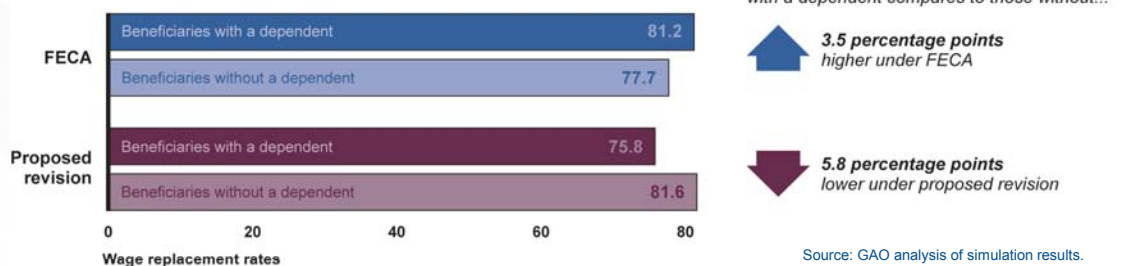
Compensating all FECA beneficiaries at 70 percent of wages at the time of injury would likely result in a decrease of the median wage replacement rate. Under our simulation the median wage replacement rate decreased from 80 to 77 percent.

Wage Replacement: Median Rates



# Equalizing FECA Compensation Rates Alters the Relative Equality in Wage Replacement Rates

Figure 2: Median Wage Replacement Rates For Beneficiaries with and without a Dependent



**The proposed revision increased the magnitude, and reversed the direction, of the difference in wage replacement rates between beneficiaries with and without a dependent.**

- Under FECA, beneficiaries with a dependent had a median wage replacement rate that was 3.5 percentage points **higher** than did those without dependents.
  - Had we accounted for the actual number of dependents, beneficiaries with a dependent would have lower wage replacement rates, and the difference between wage replacement rates would be smaller. As a result, under FECA these replacement rates are relatively similar.<sup>19</sup>
- Under the proposed revision, beneficiaries with a dependent had a median wage replacement rate 5.8 percentage points **lower** than did those without dependents.
  - Had we accounted for the actual number of dependents, the difference between wage replacement rates would be greater.
- Currently, lower tax liabilities partially offset the augmented benefits (75 vs. 66-2/3 percent) for beneficiaries with a dependent.

<sup>19</sup> Our data did not include information on the number of dependents, so we assumed a single dependent. All else equal, having more dependents would generally increase take-home pay (because of smaller tax liabilities) and therefore result in lower wage replacement rates. For information on the relationship between number of dependents and wage replacement rates, see 27.



Wage Replacement: Median Rates



## Equalizing FECA Compensation Rates (cont'd)

### Policy Implication:

Currently, FECA replaces similar percentages of take-home pay for beneficiaries with or without a dependent. The proposal to compensate all beneficiaries at 70 percent of gross income at the time of injury results in unequal wage replacement rates.

This occurs because FECA benefits are not taxed, whereas wages are. Tax deductions for dependents allow individuals with dependents to keep a greater proportion of their earnings, i.e., have greater take-home pay.

As a result, equalizing FECA compensation rates at 70 percent—or any other percentage—results in FECA replacing a smaller proportion of take-home pay for beneficiaries with a dependent than it replaces for beneficiaries without a dependent.

Wage Replacement: Subgroups Examined



## Proposed Revision Did Not Disproportionately Affect Subgroups We Examined

- While the overall median wage replacement rate was around 80 percent, wage replacement rates for some beneficiaries in the subgroups we examined were substantially lower.
- The proposed revision generally reduced wage replacement rates of beneficiaries in the subgroups we examined; however, we found no reductions that were disproportionate to the overall reduction in median benefits.
- Under both FECA and the proposed revision, we found variation in wage replacement rates between beneficiaries, based on:
  - Extent of missed career growth;
  - Extent of missed income growth;
  - GS level at time of injury; and
  - State tax rates and overall tax liabilities.

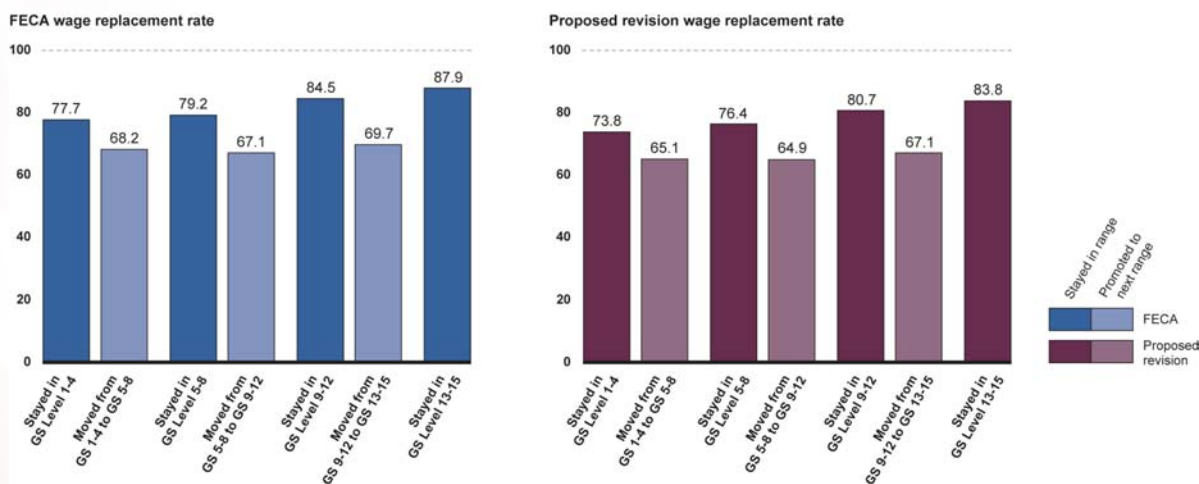
Wage Replacement: Subgroups Examined



# Missing Out on Career Growth Resulted in Lower Wage Replacement Rates

**Figure 3:**  
Median Wage Replacement Rates by Career Growth for FECA and a Proposed Revision

Source: GAO analysis of simulation results.  
Note: Missed career growth, or career growth absent an injury, is captured by moving from one GS level category to the next after the time of the simulated injury.



- Among workers who remained in the same GS category from the time of their simulated injury through 2010, median wage replacement rates were about 9-15 percentage points higher than for those who advanced a full GS category.<sup>20</sup>
  - For example, under FECA the median wage replacement rate for workers with less career growth in GS 9-12 was about 15 percentage points higher than that of workers who experienced greater career growth from GS 9-12 to GS 13-15—84.5 percent to 69.7 percent.<sup>21</sup>

<sup>20</sup> About 74 percent of workers stayed in the same GS category from time of simulated injury to 2010 and 24 percent advanced a full GS category. GS ranges were based on income (2010 dollars): GS 1-4 (<\$27,431), GS 5-8 (\$27,431-\$41,562), GS 9-12 (\$41,563-\$71,673), and GS 13-15 (≥\$71,674).

<sup>21</sup> Because of missed career growth, beneficiaries who were on FECA longer had lower wage replacement rates.

Wage Replacement: Subgroups Examined



## Missing Out on Career Growth (cont'd)

- Actual wage growth through GS step increases and promotions outweighed FECA's annual cost of living adjustments—generally higher than those for federal workers (1990-2011)—and resulted in lower wage replacement rates for beneficiaries who missed substantial career growth.
  - Because of missed career growth, beneficiaries who were on FECA longer had lower wage replacement rates.

**Policy Implication:**

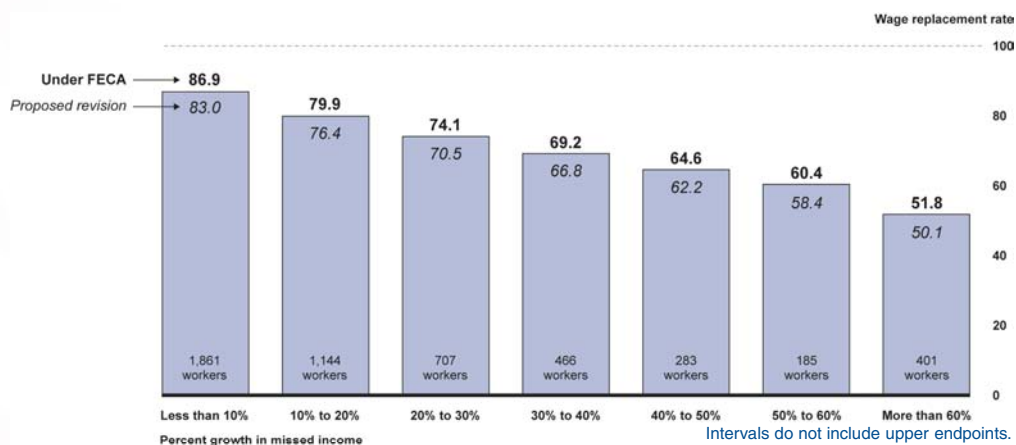
Because FECA was not designed to account for missed career growth, its cost of living increases do not keep pace with GS step increases and promotions. Those beneficiaries who miss out on career growth due to their injury have lower wage replacement rates than those who do not.

Wage Replacement: Subgroups Examined



# Missing Out on Income Growth Resulted in Lower Wage Replacement Rates

Figure 4: Median Wage Replacement Rates by Income Growth



Source: GAO analysis of simulation results.

- **Wage replacement rates declined as missed income grew.**
  - Among the 92 percent of workers who experienced income growth in their careers,<sup>22</sup> wage replacement rates under FECA ranged from about 87 percent down to about 52 percent.
  - More workers had 0-9 percent income growth than any other range; their median wage replacement rate under FECA was about 87 percent.

<sup>22</sup> The remaining 8 percent—420 workers—experienced a decline in income.

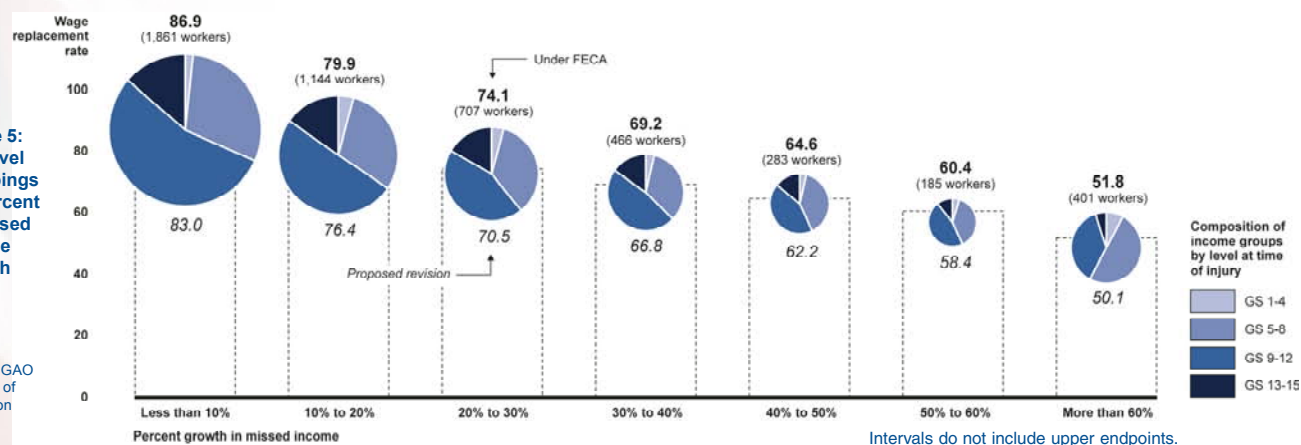
Wage Replacement: Subgroups Examined



## Missing Out on Income Growth (cont'd)

Figure 5:  
GS Level  
Groupings  
by Percent  
of Missed  
Income  
Growth

Source: GAO  
analysis of  
simulation  
results.



- Most workers whose injuries caused them to miss 0 to 9 percent growth in income were injured at higher GS levels:<sup>23</sup>
  - 30 percent were injured at GS levels 1-4 or 5-8.
  - 70 percent were injured at GS levels 9-12 or 13-15.
- Most workers whose injuries caused them to miss greater than 60 percent growth in income were injured at lower GS levels:
  - 60 percent were injured at GS levels 1-4 or 5-8.
  - 40 percent were injured at GS levels 9-12 or 13-15.

<sup>23</sup> GS ranges were based on income (2010 dollars): GS 1-4 (<\$27,431), GS 5-8 (\$27,431-\$41,562), GS 9-12 (\$41,563-\$71,673), and GS 13-15 (≥\$71,674).

Wage Replacement: Subgroups Examined



## Missing Out on Income Growth (cont'd)

- Actual income growth outweighed FECA's annual cost of living adjustments—generally higher than those for federal workers (1990-2011)—and resulted in lower wage replacement rates for beneficiaries who missed substantial income growth.<sup>24</sup>
  - Because of missed income growth, beneficiaries who were on FECA longer had lower wage replacement rates.

**Policy Implication:**

Because FECA was not designed to account for missed income growth, its cost of living increases do not keep pace with missed income growth. Those beneficiaries who miss out on income growth due to their injury have lower wage replacement rates than those who do not.

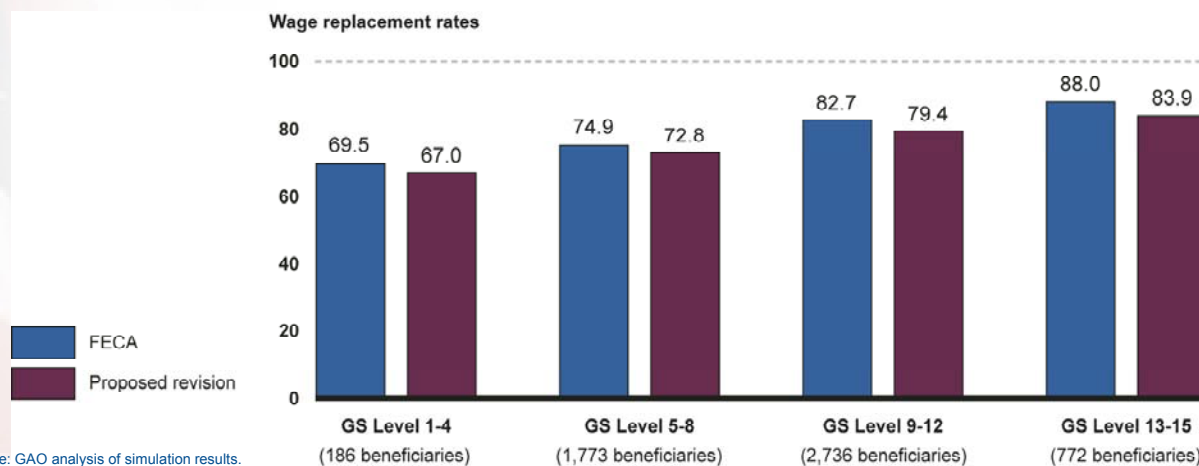
<sup>24</sup> In general, wages grow faster than prices.

Wage Replacement: Subgroups Examined



## Lower GS Levels at Time of Injury Were Associated with Lower Wage Replacement Rates

Figure 6: Median Wage Replacement Rates by GS Level at Time of Injury



Source: GAO analysis of simulation results.

**Median wage replacement rates were lower for beneficiaries injured at lower GS levels (i.e., those with lower incomes).<sup>25</sup>**

<sup>25</sup> GS ranges were based on income (2010 dollars): GS 1-4 (<\$27,431), GS 5-8 (\$27,431-\$41,562), GS 9-12 (\$41,563-\$71,673), and GS 13-15 (≥\$71,674).



Wage Replacement: Subgroups Examined



## Lower GS Levels at Time of Injury Were Associated with Lower Wage Replacement Rates

- Those injured at lower GS levels had lower median wage replacement rates because of missed career growth and tax liabilities.
  - A higher percentage of beneficiaries injured at lower GS levels were workers who advanced a full GS category from the time of their simulated injury through 2010.
    - About 63 percent of beneficiaries injured at GS 1-4 advanced a full GS category, compared to 38 and 18 percent, respectively, of beneficiaries injured at GS 5-8, and GS 9-12.<sup>26</sup>
  - Because tax liability increases with income, beneficiaries at lower GS levels generally pay lower taxes and thus take home more of their gross pay if not injured; FECA benefits thus replace a smaller percentage of take-home pay.

**Policy Implication:**

Workers who were injured at lower GS levels had lower wage replacement rates—that is FECA replaces a smaller portion of their take-home pay—than did those injured at higher GS levels. This difference occurs at initial compensation and can grow over time.

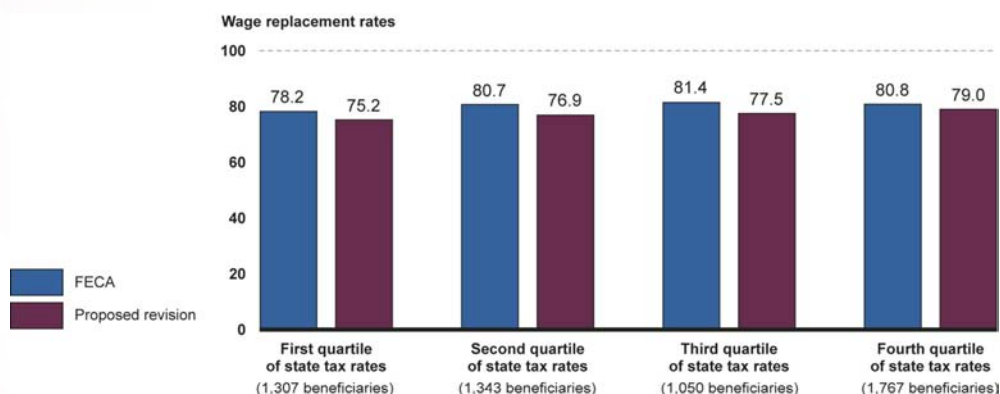
<sup>26</sup> GS ranges were based on income (2010 dollars): GS 1-4 (<\$27,431), GS 5-8 (\$27,431-\$41,562), GS 9-12 (\$41,563-\$71,673), and GS 13-15 (≥\$71,674).

Wage Replacement: Subgroups Examined



# State Taxes and Tax Liabilities Were Associated with Limited Variation in Wage Replacement Rates

Figure 7:  
Median Wage  
Replacement  
Rates by  
State Tax



Source: GAO analysis of simulation results.

- Lower taxes yield higher take-home pay, and are thus associated with lower wage replacement rates.<sup>27</sup>
- Median wage replacement rates:
  - grow as taxable income increases (e.g., spousal income);
  - decline as tax exemptions and deductions increase (e.g., for dependents, mortgage interest); and
  - were generally lower for workers in states with lower tax rates.

<sup>27</sup> FECA benefits are not taxed.



## Summary of Key Findings: FECA and FERS

### Objective 2:

- In our simulation comparing FECA to FERS in 2010, both overall and across most subgroups we looked at:
  - The median FECA benefit package (FECA and TSP) is greater than the median FERS retirement benefit package (FERS, TSP, and Social Security) for FERS annuitants in 2010.
  - The median reduced FECA benefit package—Labor’s proposal to reduce FECA benefits upon reaching Social Security retirement age—is less than the median FERS benefit package for FERS annuitants in 2010.<sup>28</sup>
- Because FERS is not yet mature, comparisons of FECA and FERS benefits in 2010 reflect limited years of service. Under our simulation of a mature FERS—consisting of a 30 year federal career—FECA and reduced FECA were generally lower than FERS.

<sup>28</sup> Labor’s proposed revision of FECA would reduce benefits to 50 percent of wages at the time of injury upon reaching Social Security retirement age, which is between 65 and 67 years of age, based on birth year. To increase the size of the analysis set, we simulated benefit reductions for all annuitants, regardless of age.

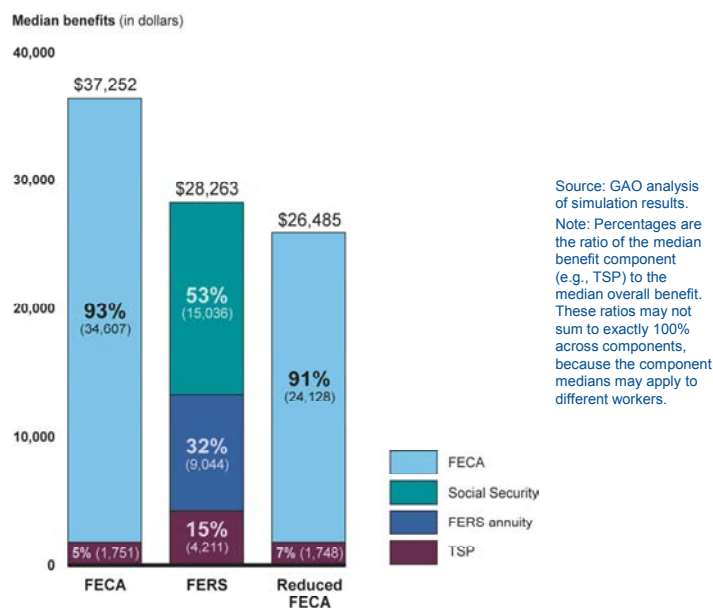
Finding 2: FECA vs. FERS at Retirement Age



## Current FECA Benefits At Retirement Are Generally Greater Than FERS Benefits for 2010 Annuitants

- The median FECA benefit at retirement age under the current program (including both FECA benefit and TSP) was about 32 percent greater than the median FERS benefit (FERS annuity, TSP, and Social Security).<sup>29</sup>
  - In our analysis, FERS annuitants had a median of about 16 years of service.
- The median FECA benefit under the proposed reduction was about 6 percent less than the median FERS benefit.

Figure 8: Composition of Median Benefits for FECA, FERS, and Reduced FECA



<sup>29</sup> Our analysis did not include any retirement income generated by retirement accounts held outside the TSP—from work outside the federal government or from other savings decisions. Further, our data does not allow distinction between the proportion of the TSP balance attributable to the employee's contribution vs. that of the government; as a result, some of the retirement benefits described are financed by reduced consumption during working years.

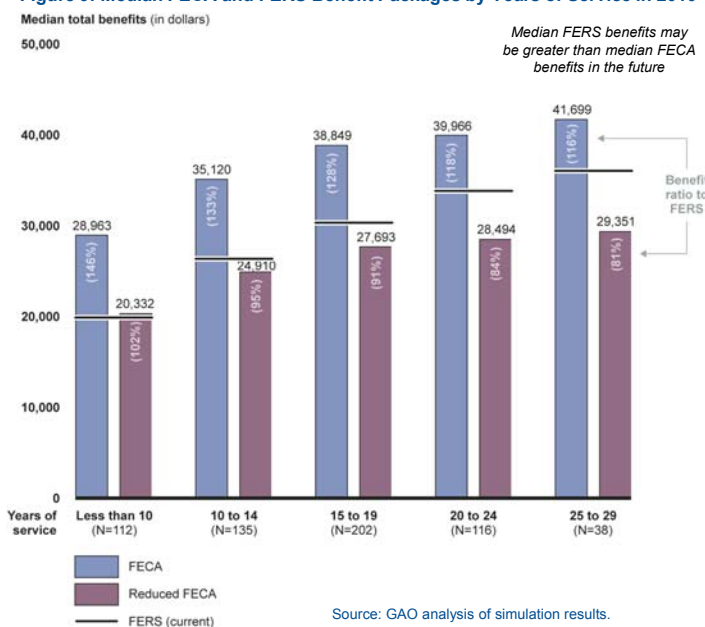
FECA vs. FERS: Years of Service



## FERS Benefits Received by 2010 Annuitants with More Years of Service Are Closer to FECA Benefits

- FECA benefits were consistently greater than FERS benefits for varying years of service, and reduced FECA benefits were generally less than FERS benefits for varying years of service.
  - The gap between current FECA benefits and FERS benefits narrowed as years of service increased.
    - An annuitant with more years of federal service had increased FERS benefits—due to growth in the TSP and FERS annuity from additional years worked, as well as to career (income) growth.
  - The gap between reduced FECA benefits and FERS benefits widened as years of service increased
- FECA COLAs do not keep pace with the total “missed” accumulation of FERS retirement benefits.

Figure 9: Median FECA and FERS Benefit Packages by Years of Service in 2010



FECA vs. FERS: Years of Service



## Years of Service (cont'd)

- As years of service increase, FECA and FERS become more similar. While FERS benefits accrue at a faster rate than FECA benefits grow prior to retirement, it is unclear which benefit would be greater if there were workers who had 30 year careers.<sup>30</sup>
- In addition, current FERS benefits at retirement are generally greater than the reduced FECA benefit, and in a mature system FERS benefits may be even greater.

<sup>30</sup> FERS had only been in place for 26 years in our 2010 data. Consequently, very few annuitants covered under FERS had 30 years of federal service (some converted from the prior retirement system to FERS). Federal employees age 62 with over 30 years of service accrue retirement benefits at a slightly higher rate. In addition, having 4 additional years of TSP contributions and growth can lead to greater account balances.

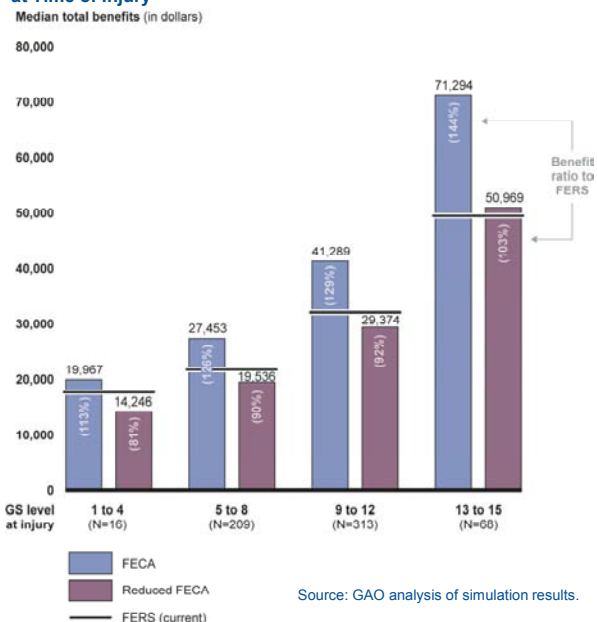
FECA vs. FERS: GS Level at Time of Injury



## Lower GS Levels at Time of Injury Resulted in Lower FECA Benefits Relative to FERS Benefits

- For varying GS levels at the time of injury:
  - Median FECA benefits were consistently greater than FERS benefits; and
  - Median reduced FECA benefits were generally less than FERS benefits.
- Beneficiaries injured at lower GS levels had lower FECA benefits relative to FERS than did beneficiaries injured at higher GS levels.<sup>31</sup>
  - This relationship also exists within years of service groups; for instance, among workers who would have had careers that lasted 20-25 years, the median FECA benefit ranged from 8.4 percent (injured at GS 5-8) to 29.3 percent (injured at GS 13-15) more than the median FERS benefit.<sup>32</sup>
- Accounting for both years of service and GS level at time of injury, beneficiaries injured at lower GS levels who would have had longer careers had they not been injured received the lowest FECA benefits relative to FERS benefits.

Figure 10: Median FECA and FERS Benefit Packages by GS Level at Time of Injury



<sup>31</sup> This relationship exists because lower earners receive a higher rate of Social Security benefits than higher earners; thus, while FECA benefits grow proportionally based on income, FERS benefits do not because Social Security rates vary, providing a higher rate of benefits to lower earners.

<sup>32</sup> There were not enough workers in our sample injured at GS 1-4 who would have had careers of 20-25 years to report their FECA/FERS benefit ratio.

FECA vs. FERS: Years Since Retirement



## Post-Retirement FECA Benefits Grow at a Faster Rate than FERS Benefits

- After retirement, FECA benefits increase at a faster rate than FERS benefits.<sup>33</sup>
  - The COLA for FECA is generally greater than the COLA for the FERS annuity, and under our simulation TSP annuities are not adjusted for inflation.
- Since FECA and reduced FECA are adjusted at the same rate, reduced FECA benefits would also grow faster than FERS benefits after retirement.
  - As a result, establishing equity between the two benefit packages at retirement could result in FECA eventually being greater than FERS.

<sup>33</sup> FECA and Social Security are adjusted by the same price index (CPI-W); the FERS annuities are adjusted as follows: if CPI-W < 2%, then FERS COLA = CPI; if 2 < CPI ≤ 3% then COLA = 2%; and if CPI > 3% then COLA = CPI - 1. The magnitude of the difference in benefits may be overstated due to the structure of the data set (the lack of a mature FERS) and our assumption of a single life annuity with level payments, which does not adjust annually post retirement (an inflation-indexed annuity would).



FECA vs. FERS: Simulation of Mature FERS



## FECA Benefits Were on Par or Less Than FERS Benefits Under Our Mature FERS Simulation

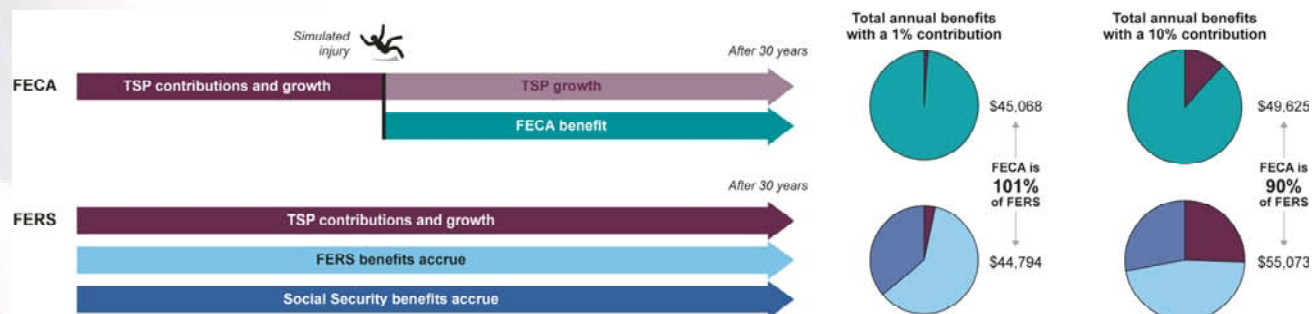
- Our simulation compares the FECA benefits for a beneficiary after a total of 30 years (pre- and post-injury combined) to the FERS benefit package he or she would have had absent an injury after a 30-year career.
- Federal workers may retire with less than 30 years of federal service, and some may retire with more than 30 years of federal service. As such, our results may overestimate (or underestimate) FERS.
- In our simulation of the mature FERS system, FECA benefits were on par with or less than FERS benefits—depending on contributions to TSP—after a simulated 30-year career. Our simulation of reducing FECA to 50 percent of applicable wages at retirement resulted in reduced FECA benefits that were substantially lower than FERS benefits after a simulated 30-year career (see figures 11 and 12).

FECA vs. FERS: Simulation of Mature FERS



# FECA Benefits Were on Par or Less Than FERS Benefits Under Our Mature FERS Simulation (cont'd)

Figure 11: FECA and FERS benefits based on simulation of 30 year careers



Source: GAO analysis of simulation results.

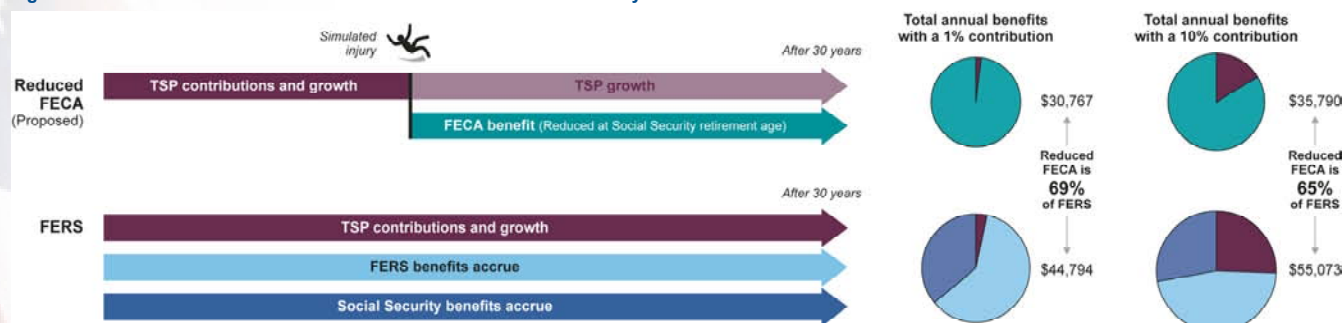
- In our simulation of a mature FERS with 30 year careers and 6 percent annual growth for the TSP accounts, we found:
  - The median FECA benefit package was 1 percent greater than the median FERS benefit package—assuming a TSP contribution of 1 percent.
  - The median FECA benefit package was 10 percent less than the median FERS benefit package—assuming a TSP contribution of 10 percent.

FECA vs. FERS: Simulation of Mature FERS



# FECA Benefits Were on Par or Less Than FERS Benefits Under Our Mature FERS Simulation (cont'd)

Figure 12: Reduced FECA and FERS benefits based on simulation of 30 year careers



Source: GAO analysis of simulation results.

- In our simulation of a mature FERS with 30 year careers and 6 percent annual growth for the TSP accounts, we found:
  - The median reduced FECA benefit package was 31 percent less than the median FERS benefit package—assuming a TSP contribution of 1 percent.
  - The median reduced FECA benefit package was 35 percent less than the median FERS benefit package—assuming a TSP contribution of 10 percent.

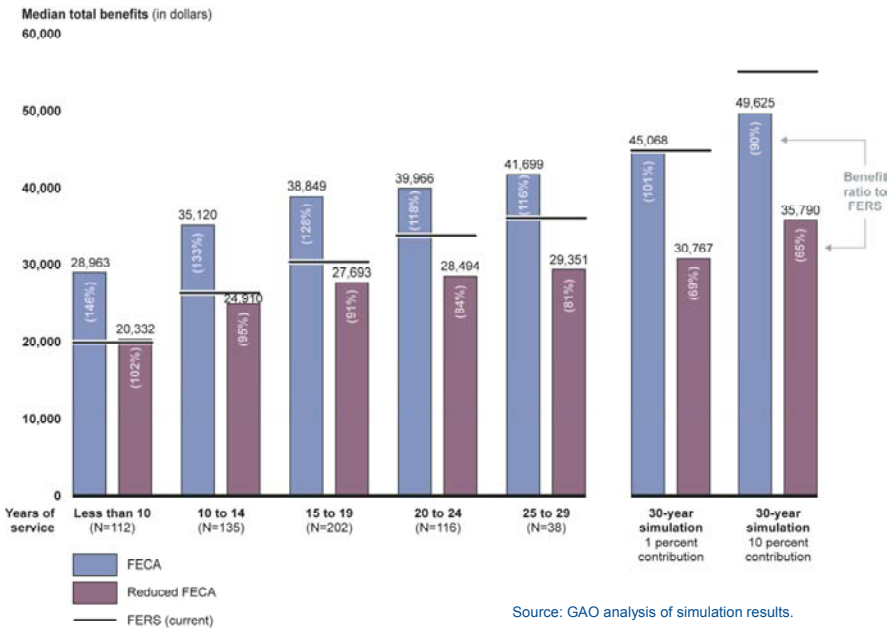
FECA vs. FERS: Simulation of Mature FERS



# FECA Benefits Were on Par or Less Than FERS Benefits Under Our Mature FERS Simulation (cont'd)

- For current FERS annuitants, median FECA benefits were consistently greater than median FERS benefits for varying years of service.
  - However, as years of service increased, FERS benefits grew relative to both current and reduced FECA benefits (narrowing and widening the respective gaps in benefits).
- Our simulation of a mature FERS, which assumed 30-year federal careers, showed that the median FECA benefit package may be on par or less than the median FERS retirement package in the future.

Figure 13: Median FECA and FERS Benefit Packages by Years of Service





## Concluding Observations: Wage Replacement Rates Under FECA and Proposed Revision

- Labor's proposal to compensate all FECA beneficiaries at 70 percent of gross wages would reduce the overall median wage replacement rate from 80 to 77 percent, based on our simulation.
  - While the median wage replacement rate under both FECA and the proposed revision are about 80 percent, wage replacement rates for some subgroups—such as those who missed extensive income growth—were as low as 50 percent.
- Since wage replacement rates are a measure of adequacy of benefits, it may be desirable to have similar wage replacement rates across beneficiaries.
  - Any proposal to reduce and equalize compensation rates—for example, at 70 percent—would disproportionately affect beneficiaries with dependents relative to those without dependents. Such a change would alter the relative equality of current wage replacement rates under FECA and result in an imbalance in the adequacy of benefits.
    - The ensuing differences in wage replacement rates are primarily attributable to taxes.
    - It is important to note that while the current program may be advantageous to beneficiaries with an eligible dependent, the proposed revision would be advantageous to those without an eligible dependent.
  - An alternative approach might be an across the board reduction in FECA compensation, which could keep wage replacement rates relatively equal between beneficiaries with and without dependents.<sup>34</sup>
    - However, such a change may have a large impact on the adequacy of benefits for those with relatively low wage replacement rates, such as beneficiaries who missed substantial career growth.

<sup>34</sup> This is an illustrative example, as no such reduction was in the Labor proposal and the effects of such reductions were not considered in this report.



## Concluding Observations: Wage Replacement Rates Under FECA and Proposed Revision (cont'd)

- It is important to note that FECA was not designed to account for missed income growth or other workplace dynamics. As such, neither FECA nor the proposed revision can maintain a constant wage replacement rate over time.
  - However, wage replacement rates that account for missed income growth provide a more complete story of the comparison between an injured worker and his or her counter-factual of having never been injured.
- Establishing a benefit structure that accounts for missed career growth and maintains constant wage replacement rates would require a nuanced approach to calculating and adjusting benefits over a beneficiary's missed career, for example by establishing variable benefit adjustments based on standardized career trajectories.
  - However, such a nuanced system may be cost intensive to research, design, and implement, and it is unclear whether it would be cost effective or feasible to implement in a fair manner.



## Concluding Observations: FECA and Proposed Revision Compared to FERS

- The median FECA benefit package in retirement was greater than the median FERS retirement package in 2010; going forward, the median FECA benefit package may be on par or less than the median FERS retirement package, as in our simulation of a mature FERS with 30-year careers.
- Labor's proposed reduction to 50 percent resulted in more equitable benefits—the median reduced FECA benefit package was about 6 percent less than the median FERS benefit package in 2010—yet going forward, the median reduced FECA package may be substantially less than the median FERS retirement package, as in our simulation of a mature FERS with 30-year careers.
  - In addition, in 2010, the median reduced-FECA benefit package was substantially lower than the median FERS benefit package for some subgroups, including those injured at lower GS levels and those who missed longer careers.
  - To the extent that policymakers might consider benefits that are substantially less than FERS to be inadequate, they may want to consider the merits of setting a minimum FECA benefit level after retirement to mitigate such an outcome.
- Since FECA benefits may grow faster than FERS benefits after retirement, any policy that equalizes FECA and FERS at retirement may not maintain equity between the two benefit packages over time.
  - Slowing the growth of FECA benefits after retirement could help maintain equity; however, doing so would erode the purchasing power of FECA beneficiaries over time and may leave them at risk of having inadequate income.
- Because annuitants with more years of service have greater retirement income, it would be important to compare FECA to FERS once the FERS system is mature.



## Concluding Observations: Lifetime Context of FECA

- From our analyses, different stories emerge with implications for the “adequacy” of FECA benefits.
  - Our simulation of wage replacement rates indicated that FECA replaces a decreasing proportion of a beneficiary’s “missed income” over time, implying the beneficiary is less able to maintain the standard of living he/she would have had absent the injury. During this missed career, FECA benefits are **less than** the income a beneficiary would have taken home.
  - Our retirement simulation indicated that FECA benefits at retirement are **greater than** FERS benefits in the current system (not yet mature).
  - Our simulation of the mature FERS, assuming 30-year careers, indicated that FECA benefits at retirement may be **on par or less than** FERS benefits in the future.
- Any such differences would be compounded over time. It is unclear whether the lifetime cumulative effects of these differences result in a beneficiary being better or worse off financially than he or she would have been absent an injury—an outcome that depends on several factors, including the age of the beneficiary at the time of injury.
- While our analyses considered FECA and FERS benefits in 2010, it will be important for policy makers to understand the cumulative effects of these differences on FECA beneficiaries as they consider making changes to FECA.



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# Appendix II: Objectives, Scope and Methodology

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To analyze the effects of a proposed revision to the Federal Employees' Compensation Act (FECA) program on non-postal federal employees<sup>1</sup>, we answered two key questions: (1) what is the effect of compensating total disability FECA beneficiaries at a single rate regardless of having dependents, and (2) how do the Federal Employee Retirement System (FERS) and total disability FECA benefits in retirement compare under the current FECA benefit structure and a proposed FECA reduction at the time of retirement? This appendix provides a detailed account of the data and methods we used to answer these questions. Section 1 describes the key data sources. Sections 2 and 3 describe the methods we used to answer questions 1 and 2, respectively.

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## Section 1: Data Sources

To answer the key questions, we used administrative data on three populations: recent federal employees, FECA beneficiaries, and FERS annuitants. These data came from 4 federal agencies: the Department of Labor (Labor), the Office of Personnel Management (OPM), the Federal Retirement Thrift Investment Board (FRTIB), and the Social Security Administration (SSA). Table 1 provides an overview of each of these data files. This section provides a description of each data source and the steps we took to ensure their reliability.

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<sup>1</sup>We analyzed federal employees who have records in the Central Personnel Data File, which is described in further detail below. This file does not contain information on employees in the U.S. Postal Services as well as several other federal agencies. Results of a similar analysis of postal employees will be included in a follow-on report.

**Table 1: Data Sources Used in Analysis**

<b>Data file</b>	<b>Federal agency responsible</b>	<b>Population covered</b>	<b>Type of information in file</b>	<b>Years of data analyzed</b>	<b>Data used for question</b>
Integrated Federal Employees' Compensation System (iFECS)	Labor	FECA beneficiaries	Benefits and characteristics	2010	1 & 2
Central Personnel Data File (CPDF)	OPM	Federal employees	Data on pay and other characteristics	1988-2010	1 & 2
FERS annuitant data	OPM	FERS annuitants	Annuity data	2010	2
Thrift Savings Plan data	FRTIB	FERS annuitants and FECA beneficiaries	TSP balances and withdrawals	2000-2010	2
Master Beneficiary Record	SSA	FERS annuitants	Social Security benefit-related data	2010	2

Source: GAO.

Note: This analysis will only cover total disability beneficiaries. Lack of data prevents a similar analysis of those beneficiaries with some wage earning capacity.

## Integrated Federal Employees' Compensation System

To obtain information on the characteristics and benefits of FECA beneficiaries, we used data from the Department of Labor's (Labor) Integrated Federal Employees' Compensation Systems (iFECS), FECA's claimant database for chargeback year 2010, which ends on June 30, 2010.<sup>2</sup> Specifically, we used information on case status (such as whether the case was closed, under administrative review, etc.); the type of compensation and medical benefits (such as whether the benefit was long-term or short-term or for medical benefits only); the amount of the benefit the beneficiary receives; and information on whether the beneficiary had a dependent.

## Central Personnel Data File

To obtain information on the salaries and work histories of former and current federal employees, we used data from the Central Personnel Data File (CPDF). The CPDF is maintained by the Office of Personnel Management, and represents the primary government source of information on federal employees. We used information from the annual status files in the CPDF. The status files consist of data elements describing all employees who were present in the federal workforce in

<sup>2</sup>FECA benefits are paid out of the Employees' Compensation Fund, and most are charged back to the employee's agency. Labor's 2010 chargeback year for FECA agency billing purposes ends on June 30, 2010.

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September of each year, with some notable exclusions.<sup>3</sup> These elements include information on the federal employee's adjusted basic pay, agency, date of birth, education level, occupation, length of federal service, and work schedule (such as full-time or part-time). We used CPDF data from 1988 through 2010.<sup>4</sup>

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FERS annuitant data

To obtain information on FERS annuitants, we used FERS annuitant data for 2010 from the Office of Personnel Management. Specifically, we used the annuity amount received by the FERS annuitant and the annuity date.

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Thrift Savings Plan data

To obtain information on TSP balances for FECA beneficiaries and FERS annuitants who separated from the government, we used Thrift Savings Plan data from 2000 to 2010. These data are maintained by the Federal Retirement Thrift Investment Board. Specifically, we used the information on the TSP balance as of April 2012, the history of withdrawals from the TSP account from 2000 to 2012 to calculate the balance at the date of separation from federal service, and the date and amount of roll-overs into the TSP account. We excluded beneficiaries with roll-overs into their TSP account.

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Master Beneficiary Record

To obtain information related to the Social Security benefits of FERS annuitants, we used data from the 2010 Master Beneficiary Record, an administrative SSA data file. Specifically, we used information on the worker's beneficiary type and Primary Insurance Amount (PIA). We

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<sup>3</sup>Specifically, CPDF coverage of the executive branch currently includes all agencies except the Board of Governors of the Federal Reserve, the Central Intelligence Agency, the Defense Intelligence Agency, Foreign Service personnel at the State Department, the National Geospatial-Intelligence Agency, the National Security Agency, the Office of the Director of National Intelligence, the Office of the Vice President, the Postal Rate Commission, the Tennessee Valley Authority, the U.S. Postal Service, and the White House Office. Also excluded are the Public Health Service's Commissioned Officer Corps, nonappropriated fund employees, and foreign nationals overseas. CPDF coverage of the legislative branch is limited to the Government Printing Office, the U.S. Tax Court, and selected commissions.

<sup>4</sup>The 2010 CPDF data were the most recent data available for the first GAO analysis of FECA, which compared FECA with CSRS annuitants. For the purposes of comparing the results across the reports, we used the same year of data.

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limited our analysis to workers who are in current pay status and retired on their own account.<sup>5</sup>

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Data reliability

For each of the datasets described above, we conducted a data reliability assessment of selected variables by conducting electronic data tests for completeness and accuracy, reviewing documentation on the dataset, and interviewing knowledgeable officials about how the data were collected and maintained and their appropriate uses. We determined that the variables that we used from the data we reviewed were reliable for the purposes of this report.

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**Section 2: Analysis of  
Effects of  
Compensating Total  
Disability FECA  
Beneficiaries At a  
Single Rate  
Regardless of Having  
Dependents**

This section presents the methods we used to answer the question: What is the effect of compensating total disability FECA beneficiaries at a single rate regardless of having dependents? To answer this question, we created a sample of federal employees that were employed by the federal government in September 2010 that were similar to full disability FECA beneficiaries, and we compared their actual salary levels in 2010 to a hypothetical FECA benefit level the employee would have received under the current and revised FECA benefit structure, if he or she had been injured at the same point in time that the matched FECA beneficiary had been injured.

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Wage replacement rate

To compare FECA benefits before and after the proposed revision, we computed a wage replacement rate under each policy scenario. The wage replacement rate, as we define it, is the amount of the FECA benefit as a proportion of take-home pay.<sup>6</sup> Using the wage replacement rate instead of comparing the dollar value of the FECA benefit with take-home pay has two main advantages. First, it is a useful way to measure benefit adequacy because it captures the extent to which an individual can maintain the standard of living he or she had prior to being injured.

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<sup>5</sup>Individuals with these characteristics were identified in the SSA administrative data as those with an "A" for primary claimant in the field called "Beneficiary Identification Code" and a "C" for current payment status in the field called "Ledger Account File."

<sup>6</sup>We used take-home pay to be consistent with [GAO-98-174](#).

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Second, it allows for easy comparison over time and across sub-populations of individuals with different salary levels.

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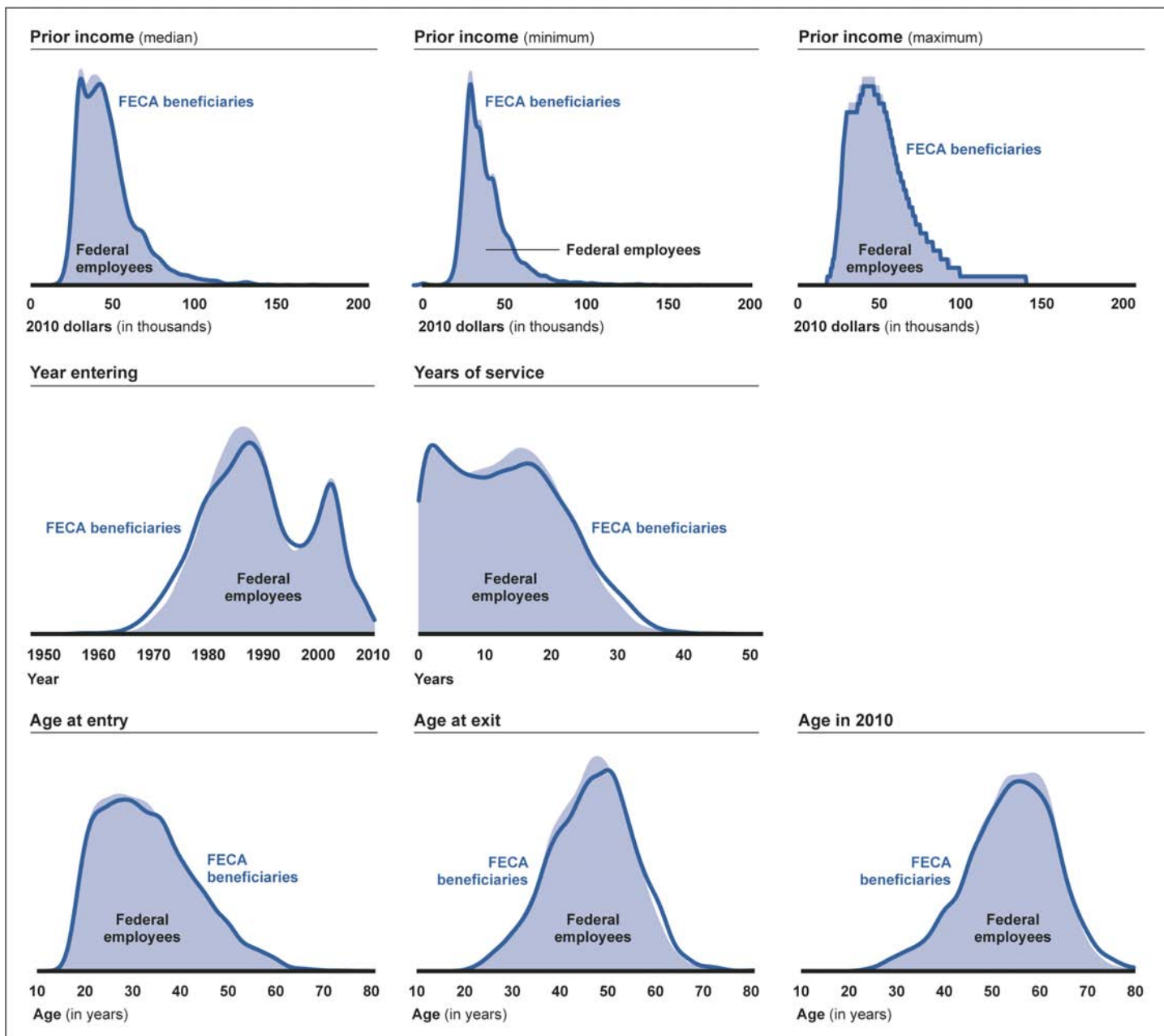
## Matching population

We computed wage replacement rates for a sample of federal employees working in September 2010 that resembled full disability FECA beneficiaries. To select this sample, we used a multivariate matching technique. Specifically, we drew a simple random sample of 10 percent of federal workers in the 2010 CPDF who were covered by FERS. We then matched each FECA beneficiary to the 2010 employee who was most similar to him or her, based on the following characteristics: employing agency; occupation type (blue v. white collar); the minimum, median, and maximum basic pay level prior to the date of injury for the FECA beneficiary; first year of employment; age when first employed and at simulated injury; number of spells of employment; education; sex; and years of service at simulated injury.<sup>7</sup> To ensure that the matches were sufficiently similar, we compared the distributions of these characteristics between FECA beneficiaries and the matched federal employees. Figure 1 and Table 2 present the distributions of and descriptive statistics on some of these characteristics for the FECA beneficiaries and the federal employees after matching.

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<sup>7</sup>To construct the matched sample, we used a computer algorithm that selected the single closest 2010 employee for each FECA beneficiary. The “closest” employee was determined based on Mahalanobis distance, which is a function of multiple characteristics of the annuitants and FECA beneficiaries. Each 2010 employee could match multiple FECA beneficiaries. Collectively, these methods are known as one-to-one Mahalanobis matching with replacement. This is different from another method—probability propensity score matching—that is also used to select matched samples. The Mahalanobis measure avoids the potential drawback of the probability propensity score because computing the Mahalanobis distance does not require estimating the probability of injury for each employee and FECA beneficiary. For more information on this technique and the characteristics that were used in the matching process, see [GAO-12-309R](#), page 17.

Figure 1: Distributions of key characteristics of matched FECA beneficiaries and federal employees



Source: GAO analysis of DOL and OPM data.

**Table 2: Distributions of covariates in matched wage replacement analysis sample**

	2010 Federal employees				FECA beneficiaries			
	1st Quartile	Median	Mean	3rd Quartile	1st Quartile	Median	Mean	3rd Quartile
Minimum income before injury (2010 dollars)	29,054	35,078	38,521	43,633	29,180	35,280	39,068	44,681
Median career income before injury (2010 dollars)	34,277	42,794	46,466	53,219	34,236	43,420	47,100	54,345
Maximum career income before injury (2010 dollars)	37,918	48,335	52,808	61,516	38,013	48,711	53,190	62,309
First year working	1983	1988	1990	1998	1982	1988	1989	1998
Years of service	5.5	12.5	12.7	18.8	5.4	12.7	13.1	19.5
Age in first year of work (years)	25.4	31.8	33	39.1	25.5	32	33.3	39.8
Age in last year of work (years)	40.3	46.5	46.1	51.9	40.8	47.3	46.9	53
Age in 2010 (years)	48.2	54.4	53.7	60.2	48	55	54	61
Number of employment spells	1	1	1.1	1	1	1	1.1	1
% Male			55				54.2	
% No high school degree			10.6				10.6	
% High school degree			44.4				44.4	
% Some college			27.9				27.9	
% College degree			10.2				10.1	
% Graduate degree			7.1				6.9	
% Blue collar occupation			28				28.1	

Source: GAO analysis of OPM and DOL data.

Our matched sample allowed us to estimate the salaries FECA beneficiaries might have earned if they had never been injured. We did not use the salaries of actual FECA beneficiaries because that would have required making assumptions about their career paths and resulting salary trajectory—as salary growth would have likely included GS step increases and promotions in addition to cost of living adjustments. In order to proxy the counterfactual salary, we used the actual salaries of the federal employees whom we matched to the FECA beneficiaries. Implicitly, we assumed that the FECA beneficiaries would have continued to the career path that his or her matched employee achieved in practice. This is a reasonable assumption, given that the matched employees resembled the FECA beneficiaries on key characteristics at all times prior to the FECA beneficiaries' injuries, including tenure and salary.

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## Computing the components of the wage replacement rate

For the matched 2010 employees who resembled FECA beneficiaries, we estimated what the wage replacement rate would have been at the end of 2010, assuming each employee was injured when the matched FECA beneficiary was injured.<sup>8</sup> In other words, we estimated a counterfactual wage replacement rate by simulating an injury for each matched 2010 employee to compute a hypothetical FECA benefit. Then we computed the wage replacement rate under the two policy scenarios in three steps.

First, we computed the hypothetical FECA benefit at the time of injury under the two scenarios. Labor uses adjusted base pay to determine benefits, so the formulas under each scenario are:

Under the current structure:

*FECA Benefit* = 0.75 × *Adjusted base pay* for beneficiaries with dependents; and

*FECA Benefit* = 0.6667 × *Adjusted base pay* for beneficiaries without dependents.

Under the proposed revised structure:

*FECA Benefit* = 0.70 × *Adjusted base pay* for beneficiaries with or without dependents.

Second, we projected the benefit amounts from the time of simulated injury through fiscal year 2010, using FECA's annual cost-of-living adjustments during this period, which were based on the Consumer Price Index (CPI).<sup>9</sup>

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<sup>8</sup>We did not include long-term partial disability beneficiaries in this analysis because we lack data on the employment histories of partial disability beneficiaries since they began receiving FECA benefits. Partial disability beneficiaries represented approximately one-quarter of all FECA full and part-time beneficiaries in chargeback year 2010. We will analyze this population using a different approach in a follow-on report.

<sup>9</sup>The cost of living adjustments granted to compensation recipients under the FECA are based on the "Consumer Price Index for Urban Wage Earners and Clerical Workers" (CPI-W) figures published by the Bureau of Labor Statistics (BLS).



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Third, we computed “take home pay” by subtracting the mandatory FERS retirement contribution (0.8 percent of adjusted gross pay) and tax deductions from adjusted base pay for 2010:<sup>10</sup>

$$\text{Take home pay} = \text{Adjusted base pay} - (0.008 \times \text{Adjusted base pay}) - \text{tax deductions}$$

Finally, we computed the wage replacement rate for 2010:

$$\text{Wage replacement rate}_{2010} = \left( \frac{\text{FECA Benefit}_{2010}}{\text{Take home pay}_{2010}} \right) \times 100$$

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## Comparison of sub-groups

To understand how the change from the first to second scenario impacted certain groups, we partitioned the sample into sub-groups based on a number of characteristics and compared the wage replacement rate for each scenario and group. The characteristics we used to determine the comparison groups included: whether the employee had dependents, residency state tax level, the GS level at the time of the simulated injury, GS level in 2010, GS level change between the simulated injury and 2010, income growth between the date of the simulated injury and 2010, and the number of years on FECA. Because the CPDF does not contain data on whether the federal employees have dependents, the matched federal worker was “assigned” dependents based on the FECA beneficiary. That is, if the FECA beneficiary had a dependent, the matched federal worker was treated as having a dependent.<sup>11</sup> Also, because GS levels are not consistent across all federal agencies covered in the CPDF data, we did not use the GS level in the CPDF but instead created categories of GS levels that corresponded with base salary in

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<sup>10</sup>We deducted payroll, federal, and state taxes using the assumption that there was no spousal income; the dependent, when present, was a spouse; and the spouse was over the age of 65 if the worker was over the age of 65. We did not account for other discretionary deductions such as for health and life insurance payments or TSP contributions. To determine federal and state income taxes, we used the National Bureau of Economic Research’s (NBER) TAXSIM. TAXSIM is NBER’s FORTRAN program for calculating liabilities under U.S. federal and state income tax laws from individual data. The TAXSIM Model (<http://www.nber.org/taxsim>) simulates the U.S. federal and state income tax rules.

<sup>11</sup>We assigned only 1 dependent per worker with dependents because the data do not indicate the number of dependents. This method is consistent with [GAO-98-174](#).

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2010.<sup>12</sup> We then compared the wage replacement rate under the two scenarios by sub-group, which are presented in the body of this report.

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## Limitations

This analysis has several limitations. First, the assumptions that we made to simulate tax deductions in our computations of take-home pay (such as the number of dependents and other deductions) will affect our estimates of wage replacement rates. For example, due to data limitations, we assumed one dependent in instances in which there might have been more than one dependent. Accounting for additional dependents would have lowered wage replacement rates. Similarly, by assigning dependents based on the matched FECA beneficiary, we cannot account for differences in individual choices to pursue different career paths as a result of having dependents. However, we lacked data on the particular circumstances of each matched federal employee, and accounting for such variation would unnecessarily complicate our methods. Second, these analyses were limited to benefits and income in 2010 and did not consider any cumulative effects of the proposed FECA revisions on lifetime income. For example, these would include the foregone savings that potentially would have been accrued as a result of having a higher salary over the course of additional years in the workforce. Finally, we assume that the tenure and income earned by the actual 2010 employees accurately simulate what their matched FECA recipients would have earned if they had not been injured. Although it is reasonable to assume that employees having nearly identical career histories prior to injury would have had approximately similar career outcomes after injury, the validity of our results depends on the accuracy of this counterfactual.<sup>13</sup>

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<sup>12</sup>Specifically, we created the following categories. GS level 1-4 pertained to base salaries < \$27,431. GS level 5-8 pertained to base salaries >= \$27,431 and < \$41,563. GS level 9-12 pertained to base salaries >= \$41,563 and < \$71,674, and GS levels 13-15 pertained to base salaries >= \$71,674.

<sup>13</sup>Specifically, FECA beneficiaries may have unobserved characteristics, such as a propensity to take risk, which affect their likelihood of becoming disabled. If these characteristics also affect labor market decisions, then using non-disabled federal employees as matches may not accurately reflect the career trajectories of FECA beneficiaries had they never been injured.

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### Section 3: Comparison of FERS and Total Disability FECA Benefits under Current and Reduced FECA

This section presents the methods we used to answer the question: How do the Federal Employee Retirement System (FERS) and total disability FECA benefits in retirement compare under the current FECA benefit structure and a proposed FECA reduction at the time of retirement? To answer this question, we selected a sample of federal annuitants, who were similar to recent FECA beneficiaries nearing retirement age, and then compared FERS and simulated FECA retirement benefits for these annuitants in 2010, under the current and reduced FECA benefit structures.<sup>14</sup>

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#### Benefit ratio

To compare FECA benefits to FERS retirement benefits before and after the proposed revisions, we computed a ratio of the retirement benefits under FECA as a proportion of retirement benefits under FERS. This ratio measures the extent to which the FECA benefit may or may not exceed the FERS retirement benefit under the current program and proposed revisions. The ratio also allows for easy comparisons between sub-groups that may have different benefit levels.

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#### Matching population

As in our wage replacement analysis, we used matching methods to simulate the benefit ratio for a set of hypothetical FECA beneficiaries near retirement. This was necessary because we did not know what the actual FECA beneficiaries would have earned and saved towards retirement in their years after being injured, if they had continued working instead of being injured. To simulate what those counterfactual earnings and retirement benefits would have been, we selected a set of retired federal employees in 2010 that resembled FECA beneficiaries who were near retirement age. Specifically, we matched FECA beneficiaries who were injured recently (after 2000), who were covered by FERS,<sup>15</sup> and were older than 55—the minimum retirement age under the FERS program—with federal annuitants under FERS. We used the same matching

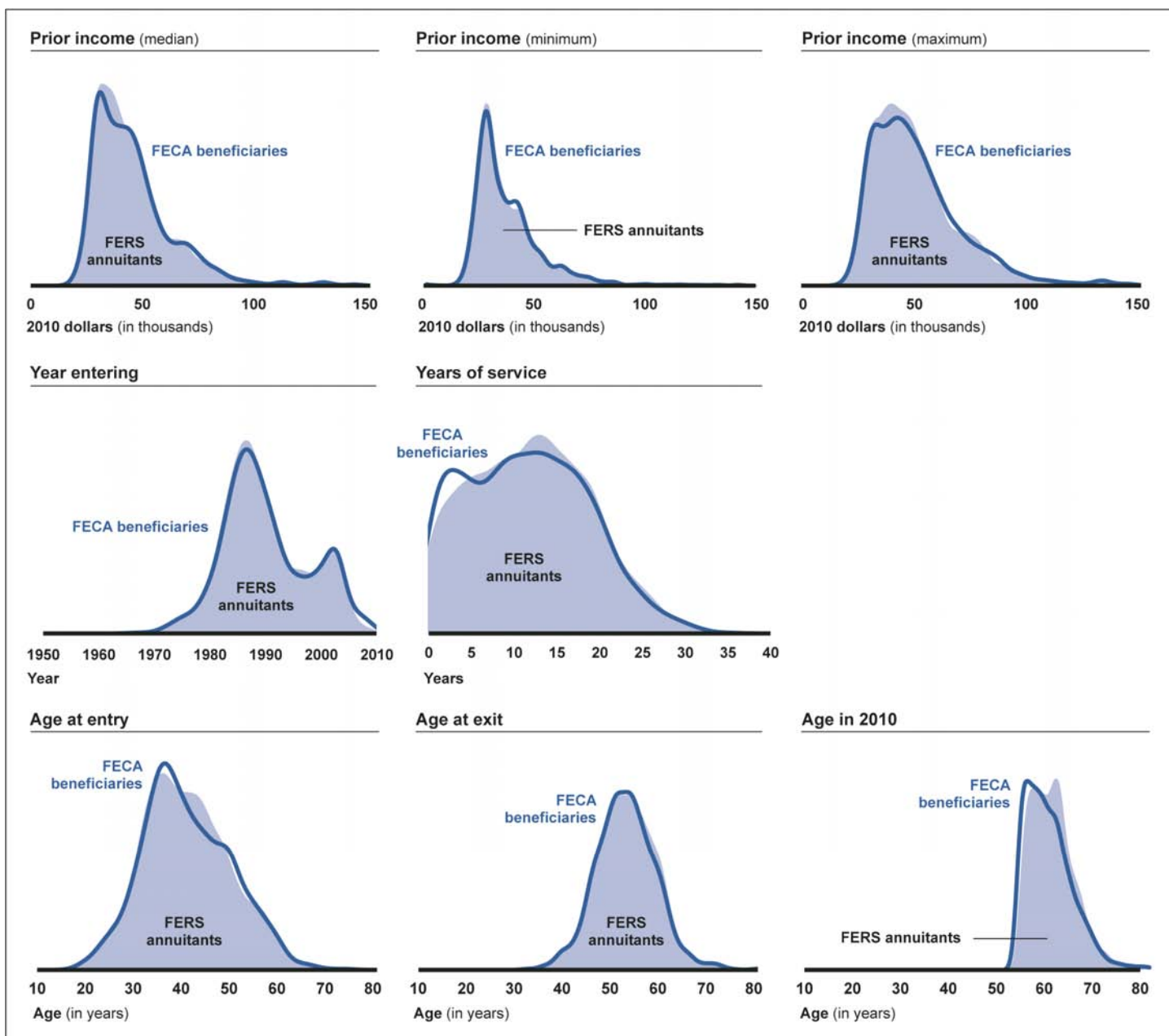
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<sup>14</sup>FECA benefits do not change when a beneficiary reaches retirement age. However, similar to other federal employees covered under FERS, a FECA beneficiary can receive returns from any TSP balances accrued prior to injury. We refer to the combination of FECA benefits and any TSP returns as “FECA retirement benefits.”

<sup>15</sup>We excluded FERS annuitants with TSP balances that had “roll-ins” or “roll-overs,” which comprise a relatively small proportion of the population of FERS annuitants. In a prior report, we present results of a similar analysis for federal employees covered under CSRS. See [GAO-12-309R](#).

methods as in the analysis of wage replacement, in order to produce a sample of annuitants who were similar to FECA recipients in the following characteristics: agency, whether the occupation is blue-collar, base pay, first year of employment, age in the first year of employment, length of spells of employment, years of service, age at exit, age in 2010, and salary by tenure. To ensure that the matched annuitants were sufficiently similar to the FECA recipients, we compared the distributions of these characteristics for the two groups. Figure 2 and Table 3 present the distributions of and descriptive statistics on some of these characteristics for the FECA beneficiaries and the FERS annuitants after matching.

Figure 2: Distributions of key characteristics of matched FECA beneficiaries and FERS annuitants



**Table 3: Distributions of covariates in matched FECA-FERS analysis sample**

	FERS annuitants				FECA beneficiaries			
	1st Quartile	Median	Mean	3rd Quartile	1st Quartile	Median	Mean	3rd Quartile
Minimum income before injury (2010 dollars)	28608	34034	38448	44713	28438	34384	38576	44189
Median career income before injury (2010 dollars)	33437	41267	45564	52510	32631	42274	45969	52895
Maximum career income before injury (2010 dollars)	36943	46478	50954	59285	36137	46971	51358	60421
First year working	1985	1988	1990	1995	1985	1989	1990	1996
Years of service	6.3	11.9	11.9	16.9	5.4	11.3	11.5	16.8
Age in first year of work (years)	34.7	40.5	41.2	47.2	34.9	40.3	41.3	48
Age in last year of work (years)	49.6	53.6	53.6	57.7	49.3	53.3	53.4	57.3
Age in 2010 (years)	58.2	61.4	61.9	64.4	57	60	61.1	64
Number of employment spells	1	1	1.1	1	1	1	1.1	1
% Male			55.3				54.9	
% No high school degree			11.9				11.9	
% High school degree			42.8				42.6	
% Some college			26.9				27	
% College degree			9.1				9.1	
% Graduate degree			9.4				9.4	
% Blue collar occupation			30.4				30.9	

Source: GAO analysis of OPM and DOL data. Finally, we simulated injuries for each annuitant at the time of his or her matched FECA beneficiary's actual injury, calculated FECA benefits based on salary at injury, and projected the benefit forward to 2010 using the FECA cost-of-living adjustment in this period.

## Computing benefit ratios

We computed benefit ratios under two scenarios: (1) under the current FECA benefit structure, and (2) a reduced benefit of 50 percent at retirement age.<sup>16</sup>

For each of these scenarios, we estimated the hypothetical FECA benefit that FERS retirees in 2010 would have received in that year. We used

<sup>16</sup>Specifically, the proposed reduction calls for the FECA benefit to be converted to 50 percent of the monthly pay of the employee when the injured employee reaches 'retirement age' as defined in section 216 of the Social Security Act, or one year after the employee begins receiving compensation, whichever is later. However, due to data limitations, we analyzed the proposed reduction at the time of the injury and inflated that amount to 2010 dollars, effectively assuming that the beneficiaries are at retirement age in 2010.

this hypothetical FECA benefit and the retiree's actual FERS benefits—TSP, Social Security, and FERS annuity—to calculate benefit ratios. However, because most FERS annuitants in 2010 had not accrued 30 years of federal service (since FERS began in 1984), FERS and FECA benefit estimates for retirees in 2010 may vary substantially from such benefits under a “mature” retirement system. The typical FERS benefit would be higher than our estimate of the FERS benefit because under a mature system, most employees would retire under FERS at age 62 with 30 years of federal service. In contrast, the current population of FERS annuitants retired at the younger ages and with shorter tenures, which decreases their FERS benefits accordingly. For this reason, we also conducted an analysis comparing estimated FECA and FERS benefits under a “mature” FERS system.

To estimate FECA retirement benefits as of June 30, 2010, we added two components—the FECA benefit and a TSP annuity.<sup>17</sup> Computing each component required several steps, which are summarized below and depicted on the left side of figure 3.

- First, we computed the gross FECA benefit at the time of injury based on the matched FERS retiree's adjusted pay at the time of the simulated injury.<sup>18</sup>
- Second, we projected the FECA benefit from the time of simulated injury to 2010, under each scenario, using the appropriate annual cost-of-living adjustment based on the Consumer Price Index (CPI).
- Third, we added the annuitized amount of the matched FECA beneficiary's pre-injury accrued TSP balance to the simulated FECA benefit for the FERS retiree. We computed this annuity by using the TSP balance at the date of the matched FECA beneficiary's injury and assumed that the annuitant elected a “single life annuity” without

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<sup>17</sup>We did not add in Social Security benefits for FECA beneficiaries because any Social Security benefits that are based on work in the federal government are deducted from the FECA benefit. FECA beneficiaries could receive additional Social Security benefits based on past earnings outside of the federal government. However we did not have the data to determine the proportion of Social Security attributable to federal work. As a result, total retirement benefits for FECA beneficiaries would be higher than those presented in the results.

<sup>18</sup>The adjusted pay in the CPDF is most representative of what a worker actually received and is the figure Labor uses to compute its benefit determinations.

additional add-on benefits.<sup>19</sup> We used the formula that the TSP program uses to calculate the amount of the annuity.<sup>20</sup> To compute an equivalent of take-home pay, we subtracted taxes from the TSP annuity.<sup>21</sup>

Similarly, to estimate FERS benefits as of June 30, 2010, we added three components—the actual FERS annuity, TSP benefit, and Social Security benefit. Computing each of these components required several steps, which are summarized below and depicted on the right side of figure 3.

- First, we obtained the monthly FERS annuity payment as of June 30, 2010 and converted it to an annual benefit by multiplying by 12.
- Second, we added an estimate of the annuitized amount of the FERS retiree's TSP balance at the time of the worker's separation from federal service.<sup>22</sup> We did not have data on the TSP balance at the time of worker's separation from federal service, so we estimated it by recreating a balance history going back in time from the 2012 balance (available in the TSP data) to the date of separation.<sup>23</sup> To estimate the annuity, we assumed that the annuitant will elect a "single life annuity" with no add-on benefits, and used the TSP formula for computing the annuity.

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<sup>19</sup>This simplifying assumption results in TSP balances greater than other TSP annuity options, such as joint-life benefits. Further, some FERS annuitants might choose not to annuitize their TSP balances, in which case their TSP benefits could be higher or lower depending on their investment choices, market conditions, and the rate at which they draw-down their account balance.

<sup>20</sup>We followed the methodology specified in the contract the FRTIB uses to establish life annuities for TSP participants and beneficiaries.

<sup>21</sup>As with the analysis of wage replacement, we deduct federal and state income taxes using the NBER TAXSIM model.

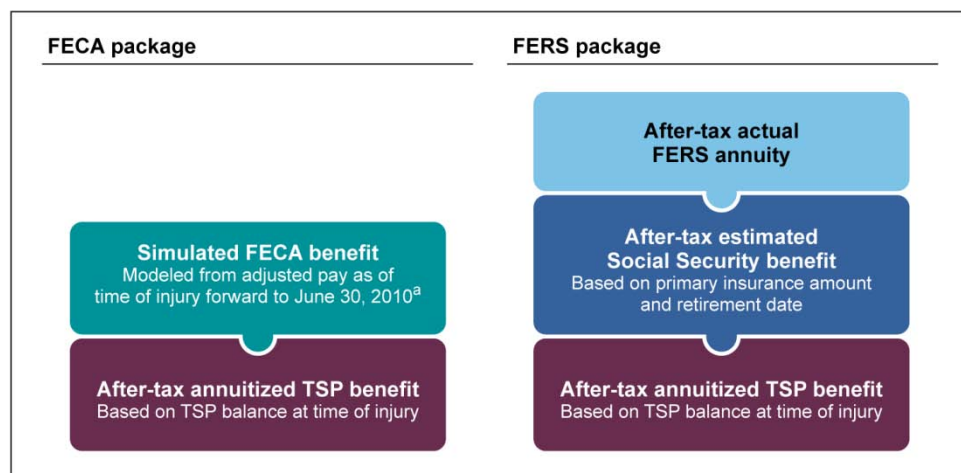
<sup>22</sup>Again, we excluded beneficiaries with roll-ins or rollovers in their TSP accounts.

<sup>23</sup>We created a balance for each year by beginning with the current balance in 2012, subtracting withdrawals for each year and adjusting for growth by dividing by 1+ the growth rate for the year. (Since 2012 was a partial year, we combined the 2011 and 2012 transactions and applied the growth rate for 2011.) We followed the same algorithm back in time, beginning with an estimated balance at time t, adding withdrawals at time t-1 and adjusting for growth by dividing by (1+ growth rate for time t-1). This results in an estimated balance at time t-1. We adjusted this method to account for working a partial year in the year of separation as appropriate. We estimated the balances using the growth rate from the G and C funds in TSP. Because the results were quite similar, we presented only the results of the G fund.



- Third, we added Social Security benefits. We calculated workers' annual Social Security benefit by assuming that all annuitants began drawing Social Security upon retirement.<sup>24</sup> We used the annuity date as a proxy for the retirement date. We adjusted the monthly benefit level to account for the timing of the receipt of Social Security benefits.<sup>25</sup>

Figure 3: Components of FECA and FERS Retirement Packages



Source: GAO.

<sup>a</sup>Calculated for two scenarios: Current benefit structure and reduced benefit structure.

<sup>24</sup>To simplify the analysis and avoid having to account for individual choices to delay receiving Social Security benefits, as well as compounded benefits resulting from spousal earnings, and bulk payments from SSA, we calculated a benefit level that was based on SSA's primary insurance amount (PIA) as opposed to using the actual payment a beneficiary received in a given month of 2010.

<sup>25</sup>Specifically, we accounted for the timing of the receipt of benefits in the calculation of the Social Security benefit in the following way. We first computed the number of months in early retirement—early retirement months or ERM—by subtracting the retirement date from the full Social Security retirement age and adjusting the benefit by 0.555 percent for each month before SSA full retirement age, up to 36 months and by an additional 0.416 percent per month for each month exceeding 36 months. In other words, if the ERM is greater than 36, then we calculated the benefit reduction as  $0.00555(36) + 0.00416(ERM - 36)$ . The monthly benefit would then be  $PIA - (PIA \times \text{benefit reduction})$ , rounded down to the nearest dollar. If the annuitant retired or separated from government service prior to age 62, we computed their Social Security benefits as if they were 62.

Finally, to estimate the “mature” FERS benefit package as of June 30, 2010, we used the same matched FERS annuitants that we used to compute the FERS package above. However, for this analysis, we simulated each of the three components of the package as though the matched FERS annuitants’ careers spanned 30 years and they retired at age 62.<sup>26</sup> To simulate each of these components, we took the following steps:

- First, we simulated the “mature” FERS annuity based on a 30-year work history by constructing a 30-year wage history for the FERS annuitant. We constructed the work history with a combination of real income data and imputations. Specifically, we retained the real income data for career years actually observed in the CPDF. We imputed income data for career years that were either (1) not observed in the CPDF or (2) non-existent because the length of the federal career was less than 30 years. For example, a person may have started working for the government in 1986 and retired early in 2006 with 20 years of service. For this person, we imputed her earnings for years 21 through 30. We imputed earnings by assuming that income in any missing year equals the most recent observed or imputed income multiplied by the average yearly proportional change in income across the observed years.<sup>27</sup> Building on the previous example, suppose the average yearly proportional change of the worker’s income were 2 percent. We would impute her income in year 21 to equal her income in year 20 multiplied by (1+.02). Therefore, income in year 22 would equal:

$$I_{22} = I_{20} \times (1 + .02)^2$$

and so on, to the 30th year, where  $I_t$  is income in year t.

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<sup>26</sup>Using 30 years of service and retirement at age 62 is consistent with simulations conducted by the Congressional Research Service. See, for example, Isaacs, Katelin P., “Federal Employees’ Retirement System: The Role of the Thrift Savings Plan,” Congressional Research Service, January, 2012.

<sup>27</sup>We trimmed a small number of outliers – approximately 1 percent of the data – where the average yearly increase exceeded 15 percent.

We used the constructed work history to simulate the FERS annuity. We computed the annuity with the FERS annuity formula for a federal career of at least 30 years:

$$A_{FERS} = 0.011 \times 30 \times \frac{(S_{(1)} + S_{(2)} + S_{(3)})}{3}$$

Where:

$A_{FERS}$  represents the FERS annuity;

$S_{(t)}$  represents salaries of rank  $t$ , where  $S_{(1)}$  is the highest salary.

Taken together the  $S$  terms should represent the “high three salaries,” which are used to compute the FERS annuity benefit.<sup>28</sup>

- Second, we simulated the TSP annuity by using the 30-year work history created above to simulate 30 years of TSP contributions for three contribution levels. The low level was a 1 percent contribution by the agency only. The mid level was a 10 percent contribution where the agency matches the employee’s 5 percent contribution. And the high level was a 15 percent contribution where the agency contributes 5 percent and the employee contributes 10 percent.

Under each of these contribution levels, we simulated three TSP growth rates of 4, 6, and 8 percent.

For example, at time period  $t$ , the TSP balance for the mid-level contribution with a mid-level growth rate of 6 percent would be:

$$\text{TSP} = (\text{Balance}(t-1) + 0.1(S_t)) \times 1.06$$

Where:

$t$  represents the number of years of work; and

$S_t$  represents the salary in year  $t$ .

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<sup>28</sup>This formula differs slightly from the formula used in FERS, which is based on the consecutive high-three salaries, but for most federal employees the high-three years will likely occur in consecutive years.

We annuitized the simulated TSP balance at retirement using the same steps and assumptions as described in the preceding section to compute the annuity.

- Third, we use the simulated wage history to calculate simulated Social Security benefits as of June, 2010. For this calculation, we assumed that all workers retire in 2010, at age 62, with 30 years of federal service; have no other creditable Social Security service; and elect to draw Social Security benefits immediately at age 62 (thereby receiving a lower benefit than they would have received had they waited to receive benefits until the full retirement age). We calculated the simulated Social Security payment by following the steps that the Social Security administration uses to compute Social Security benefits.<sup>29</sup>
- Finally, we added the simulated FERS annuity, the TSP annuity, and the Social Security benefit to arrive at the FERS retirement package under a mature FERS.

To ensure the mature FERS benefits package was comparable to the FECA benefits package, we also simulated FECA benefits under a “mature” 30-year time frame. The method we used to simulate the mature FECA benefit package was identical to our method of simulating FECA benefits in 2010 (described above) with the following two exceptions:

(1) For workers with less than 30 years of combined work and disability in 2010, we added additional years of FECA benefits so the total years of

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<sup>29</sup>Specifically, we took the following steps. First, we set the worker’s “Social Security wage” at the lower of the worker’s simulated wage or the maximum allowable wage under Social Security. The maximum allowable wage in any given year can be found at <http://www.ssa.gov/oact/COLA/cbb.html>. Second, we calculated the wage index for each year from 1981-2008 by dividing the national average wage for 2008 by the national average wage for each year from 1981 to 2008 (e.g. yielding a wage index of 1.00 for 2008 and multipliers for prior years). Third, we multiplied the “Social Security wage” by the wage index for each year from 1981 to 2008. We did not index the “Social Security wage” for 2009 and 2010. Third, we calculated the average indexed monthly earnings (AIME) by summing all the indexed wages and dividing the sum by 420 (the number of months in 35 years, since SSA uses the highest 35 years of earnings to compute the benefit). Fourth, we calculated the primary insurance amount using the Social Security bend points found at <http://www.socialsecurity.gov/OACT/COLA/bendpoints.html>, which yields the worker’s full monthly benefit. Finally, we adjusted the full monthly benefit downward because the worker was assumed to have retired early (at age 62) following SSA’s rules on calculating benefit reductions.

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combined work and disability added to 30. For example, a matched annuitant who was simulated to be injured in 2005 with 20 years of federal service at that time would have a total of 25 years of combined work and disability in 2010. To reflect a “mature” 30-year scenario, we added an additional 5 years of FECA benefits. We adjusted the additional years of FECA benefits by increasing them by the average cost of living adjustment received from 2000 through 2010 for the additional years.

(2) Similarly, we calculated balances for the TSP based on 30 years of work or disability, and annuitized using the same method as we used in calculation of the “mature” FERS TSP annuity, except that, as with the simulation of the FECA package above, we assume that the FECA beneficiary does not contribute to TSP after being injured.

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## Comparison of sub-groups

To understand how reducing FECA benefits at retirement age affected certain groups, we compared the FECA and FERS retirement packages by sub-groups. Again, we assigned a dependent to the FERS annuitant based on whether the matched FECA beneficiary had a dependent. We also used the same GS level categories as in objective 1. In addition to these characteristics, we compared the effects of the policy revision based on the number of years annuitants had been retired. To compute the number of years since retirement, we subtracted the retirement date from 2010.<sup>30</sup> We then compared the benefit ratios under the two scenarios by sub-group.

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## Limitations

This analysis has several limitations. First, the assumptions that we made in calculating Social Security and TSP benefits approximate and may not precisely reflect reality for any given FECA beneficiary or FERS annuitant. For example, we make assumptions about how funds are invested that do not account for differences in individual investment choices that may result from having dependents. Nonetheless, we feel that our assumptions are based on sound logic and account for available data. Second, although we include an annuity based on the TSP balance at the time of injury in our computation of total benefits for FECA beneficiaries, we lack data on any other retirement accounts that the

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<sup>30</sup>We used OPM’s “annuity date” variable—the date at which the annuitant began receiving benefits as a proxy for the annuitant’s retirement date.

FECA beneficiary or FERS annuitant may have. For example, some FECA beneficiaries could have invested their FECA cash benefits in other retirement accounts. This might have produced greater income at retirement for FECA beneficiaries. However, federal workers might also choose to invest wages in a supplemental retirement account, thus potentially offsetting this limitation. Third, as with our analysis of wage-replacement rates, these analyses were based on an estimate of the retirement packages in 2010 and did not consider any cumulative effects of the proposed FECA revisions on lifetime income. These would include the foregone retirement savings that potentially would have been accrued as a result of having a higher salary over the course of additional years in the workforce. In addition, our simulation of the injury process may not accurately represent the counterfactual scenario in which FECA recipients never became disabled. However, as with our simulation of wage replacement rates, it is reasonable to approximate the careers that FECA recipients would have experienced with the actual careers of highly similar workers who did not become disabled. Finally our simulation of the “mature” FERS package assumes a 30-year work history. In reality, some employees will work more and some will work less than 30 years.

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# Appendix IV: GAO Contact and Staff Acknowledgments

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## GAO Contact

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## Staff Acknowledgments

In addition to the contact named above, the following staff members made important contributions to this report: Michael J. Collins, Assistant Director; Melinda Cordero, Nagla'a El-Hodiri, Erin Godtland, Michael Kniss, Jeff Tessin, and Walter Vance. In addition, James Bennett, Jessica Botsford, Carla Craddock, Danielle Giese, Jennifer Gregory, Gene Kuehneman, Kathy Leslie, Grant Mallie, Sheila McCoy, Rhiannon Patterson, James Rebbe, Suzanne Rubins, Kate Van Gelder, and Sonya Vartivarian contributed to the report.

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