

UNITED STATES OFFICE OF PERSONNEL MANAGEMENT



**Federal Employee  
Participation Patterns in  
the Thrift Savings Plan  
2008 - 2012**

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*a New Day for Federal Service*

# Federal Employee Participation Patterns in the Thrift Savings Plan, 2008 - 2012

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## **Executive summary**

This report examines the participation and deferral trends and investment behavior of Federal employees who participated in the Thrift Savings Plan from 2008 through 2012. The impact of automatic enrollment on these measures is assessed as well. The summary analysis of the Office of Personnel Management's workforce data (mostly in the Executive branch and U.S. Postal Service) and Thrift Savings Plan matched data shows that – overall, 88.5 percent of employees deferred their money in the retirement plan during the calendar year 2012 – this rate is up from 85.4 percent in 2008. The annual deferral rate dropped 0.2 percentage point, from 8.1 percent in 2008 to 7.9 percent in 2012. Automatic enrollment appears to have substantial impact on the plan participation of newly hired employees. However, automatic enrollment has small impact on new hires' contributions, though this type of enrollment appears to reduce the differences in deferral rates among men and women (from a difference of 0.7 percentage point in 2008 to 0.4 percentage point in 2012) and minorities and whites (from a difference of 0.5 percentage point in 2008 to 0.3 percentage point in 2012). Minorities and women are more likely to invest solely in the secure G fund (Government Securities Investment Fund) compared with whites and men, respectively. Younger employees, new hires and those with low salary are also comparably more conservative in their investments.

## Table of Contents

1. Introduction .....	1
2. Methods.....	1
3. Results.....	2
3.1 TSP participation in 2012 .....	2
3.2 Investment Allocation in 2012 .....	9
3.3 Annual TSP participation from 2008 to 2012.....	14
3.4 Automatic enrollment into the TSP from 2010 to 2012 .....	18
3.5 TSP participation for 3 or less years of service in 2008 & 2012.....	19
3.6 Limitations.....	25
4. Discussion and Summary of Findings.....	26
5. References .....	29
Appendix .....	30
Internal Revenue Service contribution limits by year.....	30
TSP-OPM matched data counts by Year .....	30
Key variable definitions.....	30

## **1. Introduction**

The Thrift Savings Plan (TSP), which is administered by the Federal Retirement Thrift Investment Board, began in 1987 as part of the Federal Employee Retirement System (FERS). New employees are covered by FERS rather than the previously established Civil Service Retirement System (CSRS) – a defined-benefit plan. TSP offers five indexed core funds: Government Securities Investment Fund (G Fund), Fixed Income Index Investment Fund (F Fund), Common Stock Index Investment Fund (C Fund), Small Cap Stock Index Investment Fund (S Fund), and International Stock Index Investment Fund (I Fund). TSP participants can also invest in the Lifecycle Funds (L Funds). The L Funds are custom target-date funds invested exclusively in the G, F, C, S, and I Funds.

Starting in 2010, all newly hired Federal civilian employees are automatically enrolled in the Thrift Savings Plan (TSP) by having three percent of their basic annual salary deposited into TSP's G fund. This is considered a safe investment. The allocation can be changed by the employees for whom the money is deposited, who may choose to transfer the money into other TSP funds, change the amount deposited, or opt out of the automatic enrollment completely.

Employees can contribute deferred income up to yearly IRS limits (refer to appendix I) and receive a maximum five percent agency match. CSRS employees are allowed to participate in TSP, though they do not receive matching contributions from their agencies. Both FERS and CSRS employees receive one percent automatic agency contribution. For FERS employees contributing three percent of their salary, the agency will fully match their contribution. The first three percent of pay that the employee contributes will be matched dollar for dollar. The next two percent will be matched at fifty cents on the dollar. The contribution of the employee above five percent will not be matched.

Our focus in this report is to examine the trends of the TSP participation rate, deferral rate and other participant measures (e.g., investment asset) across five years, 2008 to 2012. In addition, the patterns of investment allocation in the aforementioned funds are assessed. We also investigate how population demographics (i.e., gender, minority status, age, length of service, and salary), and automatic enrollment influence participation and contribution behavior.

## **2. Methods**

To perform statistical analysis on the TSP participant behavior, the Office of Personnel Management (OPM) acquired 2008 through 2012 TSP participation data from the Federal Retirement Thrift Investment Board (FRTIB). This data was matched to a Federal employment file maintained by OPM, to incorporate gender, race/ethnicity, service computation date (used to

compute length of service), annual salary, and work schedule – fields not available in the TSP data.

The matching process created de-identified data for employees having records in both TSP (as of the calendar year) and OPM (as of the file date). The data includes Federal civilian employees onboard mostly in the Executive Branch and Postal Service as of December 31 of each year (active employees) – who contributed to the TSP from January 1 through December 31 (participants) or those who did not contribute over the same time period but had participated in the past (non-participants).

For our analysis, the TSP-OPM matched dataset for each year is restricted to non-seasonal full-time employees in FERS and CSRS; it does not include seasonal, part-time, intermittent employees and those with records missing values for both retirement plans. Unless noted otherwise, full-time in this report refers to non-seasonal full-time for work schedule and type of appointment. For the 2012 matched data, we received a total of 2,450,107 records. Of those, 2,322,564 records meet the above inclusion and exclusion criteria. (For other years OPM-TSP matched data counts, refer to the appendix.)

Using the data described above, measures such as averages and rates were assessed. All statistical analyses were performed in SAS (version 9.2, SAS institute, Cary, NC) and the data were graphically represented using R (version 2.15, open source software). The results of the data analysis are described and discussed in the following sections.

Note that the average deferral rate and contribution amount reported in the tables exclude non-participants from calculations. All other statistics include participants and non-participants.

(Refer to the appendix for OPM data coverage and definition of key variables/measures.)

### **3. Results**

#### **3.1 TSP participation in 2012**

**Table 1** compares the overall and retirement plan TSP summary statistics for active employees (non-seasonal full-time). FERS represents about 92 percent of the total number of employees; the overall summary figures are similar to those of FERS. On average, CSRS employees are older with longer length of service compared with FERS; this translates to a relatively higher average salary (\$87,536), higher average deferral rate (8.3 percent of their pay) and subsequently, higher deferral dollar amount (\$7,722); they all have TSP participation history, and 50 percent of those participants contributed above the 5 percent agency matching contributions. On the other hand, FERS has greater participation rate (88.8 percent of total number of employees who contributed

their own money to the TSP) than that of CSRS (85.5 percent) and about 41 percent of FERS active employees invested solely in the low risk G Fund, compared with approximately 28 percent for CSRS. Furthermore, about half of all FERS employees are receiving the full agency matching contribution.

**Table 1. Summary Statistics of TSP Participation by Retirement System**

<b>Statistics</b>	<b>All</b>	<b>CSRS</b>	<b>FERS</b>
Number of Active Employees	2,322,564	186,239	2,136,325
Percent	100%	8.0%	92%
Participation Rate	88.5%	85.5%	88.8%
Ever Participate	94.8%	100.0%	94.4%
Average Salary	\$73,872	\$87,536	\$72,680
Average Deferral (Participants)	\$6,390	\$7,722	\$6,279
Average Deferral Rate (Participants)	7.9%	8.3%	7.9%
Average TSP Balance	\$95,977	\$94,987	\$96,063
Average Age (years)	47.8	58.4	46.9
Average Length of Service (years)	14.5	33.6	12.9
G Fund Only	39.6%	27.7%	40.7%
Above Agency Match	49.0%	50.1%	48.9%

Full-time employees as of December 31, 2012

**Table 2** presents the trends of TSP participation for FERS and CSRS employees by age, length of service, and salary categories. In both retirement plans, the average deferrals (dollar amount and percentage) increase with age, length of service and salary – except for those with length of service 31 and above (in CSRS) and salary \$150,000 and above where the averages drop slightly. This decrease in the highest level of salary may be related to the yearly IRS deferment limitations (refer to the appendix). The CSRS participation rate trends up with age, whereas the FERS participation rate generally declines with age. It is higher among employees aged 20 and under (94.5 percent) and it reaches its lowest point at 87.6 percent in the age groups 40-49 and 70 and above.

**Table 2. FERS and CSRS TSP Participation by Age, Length of Service, and Salary**

Demographics	CSRS				FERS			
	Number of Active Employees	Participation Rate	Average Deferral (Participants)	Average Deferral Rate (Participants)	Number of Active Employees	Participation Rate	Average Deferral (Participants)	Average Deferral Rate (Participants)
<b>Age (years)</b>								
<20	--	--	--	--	181	94.5%	\$863	2.3%
20-29	--	--	--	--	148,557	91.7%	\$3,157	5.2%
30-39	--	--	--	--	423,335	89.6%	\$4,730	6.3%
40-49	4,049	84.1%	\$5,582	6.1%	655,731	87.6%	\$6,023	7.4%
50-59	118,053	84.9%	\$7,359	8.0%	687,966	88.7%	\$7,436	9.2%
60-69	59,217	86.5%	\$8,402	9.0%	209,063	89.1%	\$8,484	10.5%
70+	4,866	89.0%	\$9,766	9.7%	11,492	87.6%	\$10,071	11.8%
<b>Length of Service (years)</b>								
<5	493	85.6%	\$6,318	7.1%	536,038	90.1%	\$4,074	5.7%
5-10	678	91.3%	\$6,575	7.6%	534,468	87.6%	\$5,943	7.7%
11-20	3,341	90.5%	\$7,224	8.4%	542,100	87.8%	\$6,986	8.8%
21-30	40,674	85.6%	\$7,804	8.4%	494,935	89.4%	\$8,091	9.4%
31+	141,025	85.4%	\$7,722	8.3%	28,769	91.4%	\$9,295	10.4%
<b>Salary</b>								
<\$50,000	10,240	80.3%	\$2,751	6.2%	431,606	82.7%	\$2,294	5.4%
\$50,000-\$99,999	115,219	83.6%	\$5,603	7.9%	1,330,398	88.8%	\$5,611	8.1%
\$100,000-\$149,999	47,496	89.6%	\$11,388	9.5%	307,694	95.6%	\$11,820	10.0%
\$150,000+	13,120	91.5%	\$15,050	9.2%	63,772	96.7%	\$15,176	9.0%

Full-time employees as of December 31, 2012 -- Invalid or missing values are omitted -- Cells with few participants are suppressed.

**Table 3** compares non-minorities (whites) with minorities TSP participation by age, length of service, and salary categories. All measures are lower for minorities except that a higher percentage of minorities (47 percent) allocate their monies solely in the G fund relative to whites (36 percent). Compared with whites, the participation rate for minorities (86.4 percent) is about 5 percentage points lower and their average deferral rate (7.2 percent) is close to 1 percentage point lower. The average deferral amount for whites (\$7,313) is about 26 percentage points higher, and their average TSP balance is about 47 percentage points higher compared with the average TSP balance for minorities. More than 60 percent of employees who are under age 20; have a length of service of less than 5 years; and are paid a salary of less than \$50,000 allocate their earnings exclusively into the G fund. The overall average investment balance differential between whites and minorities is 32 percent. In general, this gap increases as age, length of service and salary increase.



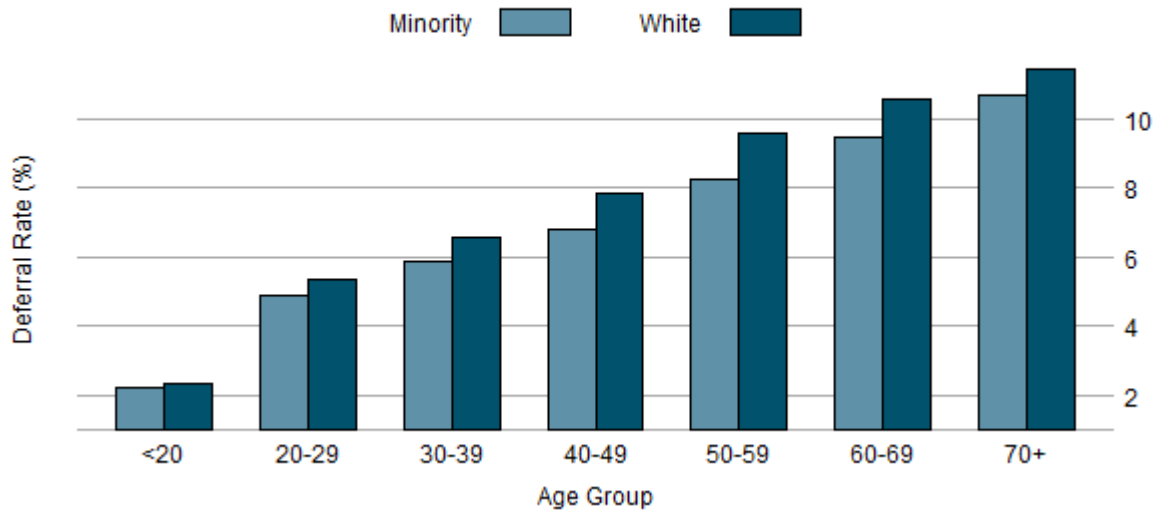
**Table 3. White and Minority TSP Participation by Age, Length of Service, and Salary**

Demographics	Participation Rate		Ever Participate		Average Years in TSP		Average Deferral (Participants)		Average Deferral Rate (Participants)		Average TSP Balance		G Fund Only	
	Minority	White	Minority	White	Minority	White	Minority	White	Minority	White	Minority	White	Minority	White
<b>Active employees</b>														
All	86.4%	91.6%	93.7%	95.4%	10.2	10.7	\$5,791	\$7,313	7.2%	8.3%	\$74,551	\$109,698	46.8%	36.4%
<b>Age (years)</b>														
<20	95.0%	93.4%	95.0%	96.7%	0.7	0.7	\$851	\$868	2.2%	2.4%	\$2,101	\$2,521	100.0%	91.8%
20-29	89.6%	92.9%	92.4%	94.6%	2.9	2.8	\$2,888	\$3,300	4.9%	5.4%	\$13,533	\$16,300	69.9%	56.5%
30-39	88.0%	91.9%	93.2%	94.8%	5.6	5.7	\$4,376	\$5,152	5.9%	6.6%	\$35,443	\$46,404	53.5%	40.0%
40-49	85.5%	91.1%	93.6%	95.1%	10.2	10.7	\$5,648	\$6,960	6.8%	7.8%	\$76,270	\$112,348	42.9%	32.3%
50-59	85.4%	91.6%	94.4%	96.0%	13.4	14.1	\$6,941	\$8,926	8.3%	9.6%	\$101,539	\$152,014	41.6%	32.3%
60-69	85.9%	91.3%	94.5%	95.6%	14.9	14.7	\$7,978	\$9,923	9.5%	10.6%	\$114,185	\$154,014	42.9%	36.9%
70+	88.2%	90.1%	94.9%	95.1%	17.1	16.7	\$9,675	\$11,213	10.7%	11.4%	\$156,811	\$189,705	44.0%	41.3%
<b>Length of Service (years)</b>														
<5	88.6%	91.1%	90.9%	92.6%	2.6	2.6	\$3,750	\$4,307	5.5%	5.9%	\$16,473	\$20,413	72.4%	60.4%
5-10	85.8%	90.2%	91.9%	93.6%	6.8	7.0	\$5,518	\$6,620	7.3%	8.1%	\$46,870	\$62,853	50.7%	37.2%
11-20	85.8%	92.3%	94.9%	96.7%	12.1	12.8	\$6,895	\$8,587	8.2%	9.5%	\$99,552	\$139,351	32.7%	21.9%
21-30	85.6%	93.7%	97.0%	98.5%	18.9	20.6	\$7,452	\$10,127	8.3%	10.2%	\$155,646	\$247,329	27.7%	20.0%
31+	84.0%	90.6%	99.3%	99.7%	18.3	20.0	\$6,903	\$10,105	7.3%	9.7%	\$92,314	\$160,444	29.9%	23.3%
<b>Salary</b>														
<\$50,000	79.5%	85.1%	88.1%	89.7%	6.7	6.0	\$2,079	\$2,381	5.0%	5.7%	\$18,520	\$22,104	71.0%	63.2%
\$50,000-\$99,999	87.7%	91.9%	95.2%	95.8%	10.4	10.1	\$5,516	\$6,211	7.5%	8.3%	\$65,467	\$81,430	41.9%	35.1%
\$100,000-\$149,999	92.9%	95.6%	98.3%	98.5%	14.5	14.7	\$11,012	\$12,049	9.4%	10.1%	\$179,549	\$213,470	22.9%	19.6%
\$150,000+	95.1%	96.1%	98.2%	98.7%	13.7	16.1	\$14,608	\$15,309	8.5%	9.2%	\$259,371	\$313,226	25.9%	19.8%

Full-time employees as of December 31, 2012 -- Invalid or missing values are omitted.

**Figure 1** depicts the patterns of deferral rates for whites and minorities by age group. On average the deferral rates for whites and minorities rise with age; and in all age groups, the rates for whites are greater than those for minorities.

Figure 1. Average TSP Participant Deferral Rates for Full-time Employees -- as of 2012



**Table 4** compares males with females TSP participation by age, length of service, and salary categories. Overall, men surpass women on average deferral amount (\$6,736 for men vs. \$5,917 for women – a differential of about 14 percent), and average investment balance (\$103,380 for men vs. \$85,890 for women – a differential of about 20 percent). On the other hand, the proportion of women who invest solely in the G fund is higher than that of men (42.2 for women vs. 37.8 percent for men). On average, there are narrow differences in participation rate and duration in TSP between men and women. The overall average investment balance differential between men and women is 17 percent. That is almost half of the differential between whites and minorities.

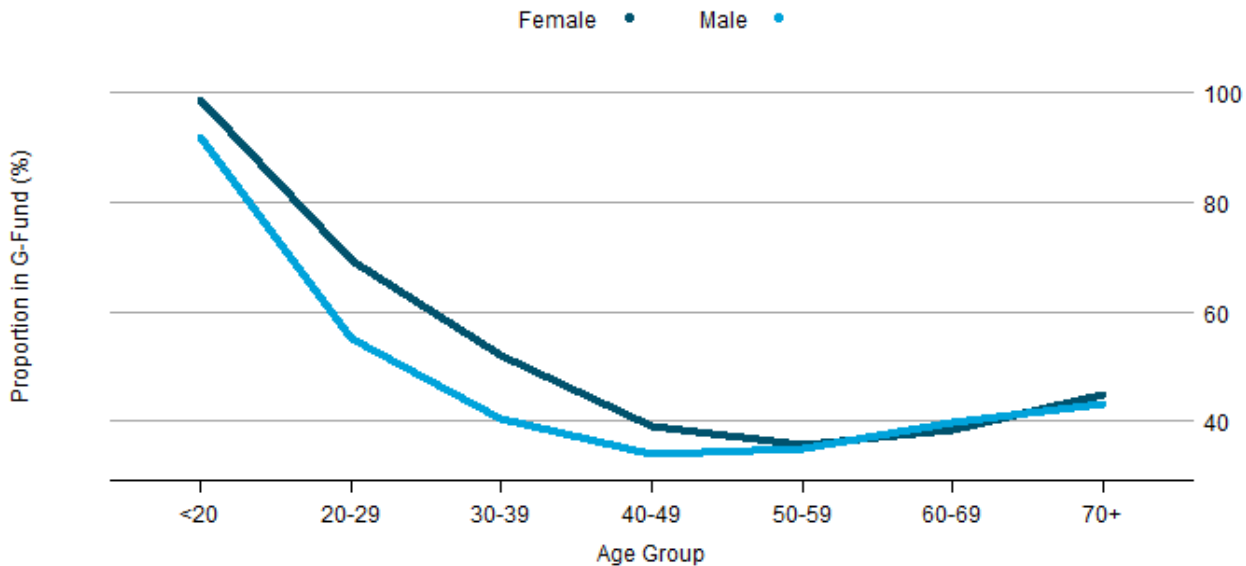
**Table 4. Male and Female TSP Participation by Age, Length of Service, and Salary**

Demographics	Participation Rate		Ever Participate		Average Years in TSP		Average Deferral (Participants)		Average Deferral Rate (Participants)		Average TSP Balance		G Fund Only	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<b>Active Employees</b>														
All	88.7%	88.3%	94.3%	95.4%	11.3	11.7	\$6,736	\$5,917	8.2%	7.6%	\$103,380	\$85,890	37.8%	42.2%
<b>Age (years)</b>														
<20	92.8%	95.8%	94.6%	98.6%	0.7	0.6	\$998	\$594	2.6%	1.7%	\$2,965	\$1,473	91.9%	98.6%
20-29	92.0%	91.2%	94.1%	93.4%	3.0	2.8	\$3,407	\$2,807	5.6%	4.7%	\$16,822	\$13,573	55.1%	69.4%
30-39	89.9%	89.1%	94.0%	94.0%	6.0	5.9	\$4,976	\$4,392	6.7%	5.8%	\$45,090	\$37,970	40.6%	52.0%
40-49	88.0%	87.0%	94.0%	95.0%	10.9	11.5	\$6,364	\$5,553	7.7%	7.0%	\$101,622	\$84,532	34.1%	39.2%
50-59	88.1%	88.2%	94.8%	96.5%	14.5	15.0	\$7,822	\$6,910	9.2%	8.7%	\$138,105	\$113,033	35.2%	35.8%
60-69	88.2%	89.1%	94.5%	96.5%	15.2	15.8	\$8,791	\$7,953	10.2%	10.0%	\$138,164	\$121,668	39.8%	38.4%
70+	88.0%	88.1%	93.9%	95.7%	16.3	18.0	\$10,808	\$8,443	11.2%	11.2%	\$182,017	\$131,393	43.2%	44.8%
<b>Length of Service (years)</b>														
<5	89.9%	90.4%	91.6%	92.4%	2.5	2.6	\$4,317	\$3,730	5.9%	5.4%	\$20,060	\$17,076	60.5%	71.2%
5-10	87.6%	87.7%	91.9%	93.0%	6.9	6.9	\$6,334	\$5,355	8.1%	7.2%	\$58,172	\$47,541	41.1%	50.2%
11-20	88.1%	87.5%	95.2%	96.3%	12.8	12.9	\$7,380	\$6,427	9.1%	8.3%	\$118,696	\$99,244	26.4%	29.6%
21-30	89.7%	88.4%	97.5%	98.1%	20.5	19.9	\$8,595	\$7,445	9.6%	9.0%	\$217,102	\$163,378	25.3%	25.6%
31+	86.6%	86.1%	99.5%	99.8%	19.6	19.0	\$8,436	\$7,490	9.1%	8.3%	\$137,288	\$101,655	27.6%	27.1%
<b>Salary</b>														
<\$50,000	82.3%	83.0%	87.9%	90.2%	5.6	7.1	\$2,395	\$2,216	5.6%	5.3%	\$20,212	\$22,870	66.0%	66.9%
\$50,000-\$99,999	88.2%	88.5%	94.7%	96.5%	11.5	12.4	\$5,744	\$5,425	8.3%	7.8%	\$83,231	\$77,911	36.1%	38.6%
\$100,000-\$149,999	94.8%	94.9%	98.2%	99.0%	14.5	15.1	\$11,814	\$11,684	10.0%	9.9%	\$211,828	\$191,346	20.7%	20.2%
\$150,000+	95.5%	96.5%	98.4%	98.8%	15.7	15.3	\$15,089	\$15,303	9.0%	9.2%	\$305,831	\$291,958	21.1%	21.1%

Full-time employees as of December 31, 2012 -- Invalid or missing values are omitted.

**Figure 2** compares the proportion of males with females who have invested solely in the G fund across age groups. In general, the rate of investment in G fund decrease with age; with women investing more in most age groups than men. At older ages (50 and above), the gap in the investment rates between men and women narrows substantially.

Figure 2. Proportion of Full-Time Employees Who Invested Solely in No-Risk G Fund -- as of 2012



3.2

### 3.2 Investment Allocation in 2012

**Table 5** compares the average numbers of funds held and asset allocations for whites with minorities by age, length of service and salary categories. Overall, whites hold more funds than minorities on average. The pattern of investment across age, tenure and salary levels looks similar for both whites and minorities – with most employees investing in the G-fund only. However, the proportion of minorities that invest solely in the G-fund (47 percent) is 11 percentage points higher compared with the proportion for whites (36 percent), overall. Investment in the G fund decreases as age increases until age 59, and then increases slightly at age 60 and beyond. Both non-minorities and minorities in higher income categories tend to invest in riskier funds such as I, C, and S. The lower income employees tend to keep their monies in the G fund only for a safer investment.

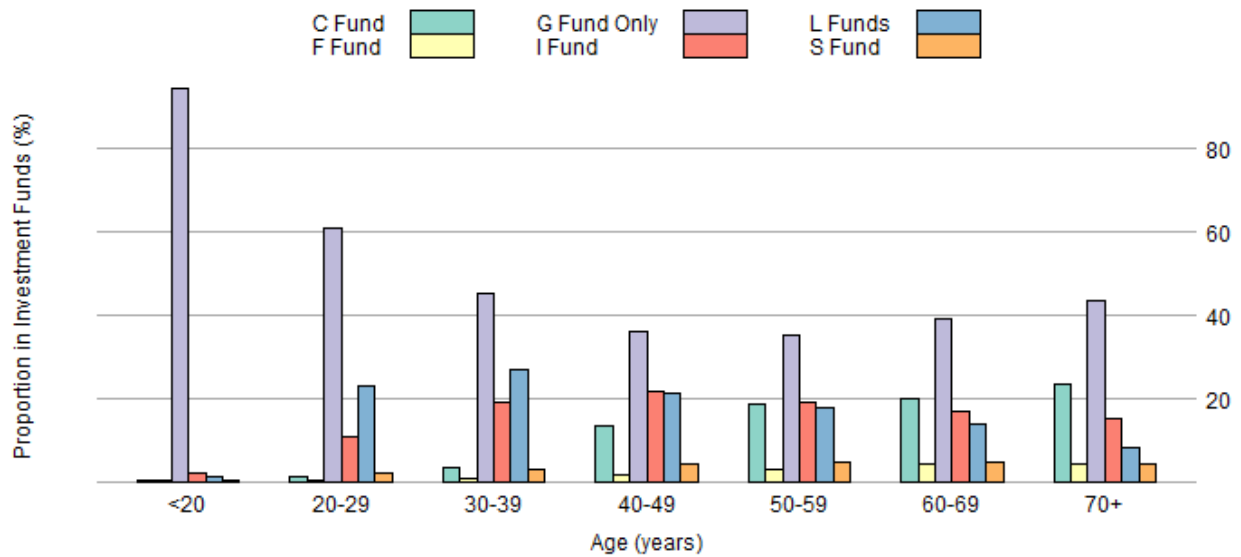
**Table 5. White and Minority Average Number of Funds Held and Asset Allocation by Age, Length of Service, and Salary**

Demographics	Minority							White						
	Average Fund	G Fund Only	F Fund	C Fund	S Fund	I Fund	L Funds	Average Fund	G Fund Only	F Fund	C Fund	S Fund	I Fund	L Funds
<b>Active Employees</b>														
All	2.3	46.8%	2.0%	11.4%	3.5%	17.9%	18.4%	2.4	36.4%	2.5%	11.0%	4.7%	20.9%	24.4%
<b>Age (years)</b>														
<20	1.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1	91.8%	0.8%	0.8%	0.8%	3.3%	2.5%
20-29	1.7	69.9%	0.7%	1.2%	1.8%	9.2%	17.3%	1.9	56.5%	0.9%	1.4%	2.6%	11.9%	26.7%
30-39	2.2	53.5%	1.0%	3.0%	2.7%	17.2%	22.6%	2.3	40.0%	1.2%	3.1%	3.4%	20.6%	31.7%
40-49	2.4	42.9%	1.8%	11.9%	3.8%	20.0%	19.5%	2.5	32.3%	2.0%	11.2%	5.1%	24.0%	25.4%
50-59	2.4	41.6%	2.7%	16.6%	4.1%	18.4%	16.6%	2.5	32.3%	3.4%	15.5%	5.6%	21.5%	21.6%
60-69	2.3	42.9%	3.6%	19.5%	4.1%	17.3%	12.7%	2.3	36.9%	4.5%	17.4%	5.5%	19.2%	16.5%
70+	2.1	44.0%	3.5%	23.7%	4.2%	16.4%	8.2%	2.1	41.3%	4.8%	22.9%	4.7%	17.0%	9.4%
<b>Length of Service (years)</b>														
<5	1.7	72.4%	0.9%	1.3%	2.1%	8.1%	15.2%	1.8	60.4%	1.3%	1.8%	2.9%	10.7%	23.0%
5-10	2.3	50.7%	1.4%	2.3%	3.0%	19.4%	23.2%	2.4	37.2%	1.8%	2.9%	4.1%	23.1%	30.9%
11-20	2.6	32.7%	2.4%	15.8%	4.5%	24.5%	20.1%	2.7	21.9%	3.0%	16.2%	5.9%	28.2%	24.7%
21-30	2.6	27.7%	3.2%	25.9%	4.9%	21.6%	16.7%	2.7	20.0%	3.8%	23.8%	6.5%	25.3%	20.6%
31+	2.4	29.9%	3.8%	29.7%	4.5%	19.2%	12.8%	2.5	23.3%	4.8%	26.7%	6.3%	22.4%	16.5%
<b>Salary</b>														
<\$50,000	1.7	71.0%	1.1%	6.5%	1.8%	9.4%	10.2%	1.8	63.2%	1.5%	5.5%	2.7%	10.8%	16.3%
\$50,000-\$99,999	2.4	41.9%	2.1%	12.0%	3.8%	19.4%	20.8%	2.4	35.1%	2.6%	10.3%	4.7%	20.8%	26.4%
\$100,000-\$149,999	2.9	22.9%	3.0%	17.4%	5.7%	26.5%	24.5%	2.8	19.6%	3.1%	16.0%	6.3%	28.4%	26.6%
\$150,000+	2.7	25.9%	3.0%	16.7%	5.3%	26.0%	23.2%	2.8	19.8%	2.9%	18.9%	6.1%	29.0%	23.3%

Full-time employees as of December 31, 2012 -- Invalid or missing values are omitted.

**Figure 3** depicts the overall proportions of employees who invested in G, F, C, S, I and L funds by age groups. Across all age groups, most employees allocated their money solely in the G fund – with age groups less than 20 and 20-29 having the largest proportions and middle-aged groups 40-49 and 50-59 having the lowest proportions. Those in age group 30-39 invest more in L funds than those in other age groups who invest in the same funds.

Figure 3. Proportion of Full-time Employees Who Invested in TSP Funds, by Age -- as of 2012



**Table 6** compares the average numbers of funds held and asset allocations for males and females by age, length of service and salary categories. Overall, men and women hold the same number of funds on average, although, 42 percent of women have invested solely in the G fund, compared with 38 percent of men. Across all age, tenure and salary levels, the pattern of investment looks the same for both genders. Women aged 50 and above are equally likely to invest solely in the G fund as their age counterparts among men. Those with 21 or more years of service or earning \$100,000 in salary also exhibit similar patterns.

**Table 6. Male and Female Average Number of Funds Held and Asset Allocation by Age, Length of Service, and Salary**

Demographics	Male							Female						
	Average Fund	G Fund Only	F Fund	C Fund	S Fund	I Fund	L Funds	Average Fund	G Fund Only	F Fund	C Fund	S Fund	I Fund	L Funds
<b>Active Employees</b>														
All	2.3	37.8%	2.8%	12.9%	5.0%	20.5%	21.0%	2.3	42.2%	2.4%	14.6%	3.5%	17.5%	19.8%
<b>Age (years)</b>														
<20	1.1	91.9%	0.9%	0.9%	0.9%	3.6%	1.8%	1.1	98.6%	0.0%	0.0%	0.0%	0.0%	1.4%
20-29	1.9	55.1%	1.1%	1.6%	2.9%	13.4%	26.0%	1.6	69.4%	0.5%	1.0%	1.5%	7.8%	19.9%
30-39	2.3	40.6%	1.4%	3.7%	3.8%	21.8%	28.7%	2.1	52.0%	0.9%	3.9%	2.3%	15.7%	25.2%
40-49	2.4	34.1%	2.2%	12.6%	5.3%	23.5%	22.2%	2.4	39.2%	1.9%	15.3%	3.5%	19.5%	20.5%
50-59	2.4	35.2%	3.6%	17.7%	5.6%	20.0%	17.9%	2.4	35.8%	3.2%	20.0%	4.2%	18.6%	18.2%
60-69	2.2	39.8%	4.7%	19.7%	5.3%	17.1%	13.5%	2.3	38.4%	4.2%	20.8%	4.2%	17.7%	14.7%
70+	2.1	43.2%	4.5%	23.1%	4.6%	15.6%	8.9%	2.1	44.8%	4.2%	24.7%	3.9%	15.0%	7.4%
<b>Length of Service (years)</b>														
<5	1.8	60.5%	1.4%	1.9%	3.2%	11.3%	21.7%	1.6	71.2%	0.8%	1.3%	1.7%	7.3%	17.7%
5-10	2.4	41.1%	1.9%	2.8%	4.2%	22.7%	27.4%	2.2	50.2%	1.4%	2.6%	2.8%	17.7%	25.4%
11-20	2.6	26.4%	3.2%	19.0%	5.8%	25.7%	19.9%	2.6	29.6%	2.8%	21.0%	4.2%	22.4%	20.1%
21-30	2.5	25.3%	4.1%	25.1%	6.5%	22.5%	16.7%	2.7	25.6%	3.5%	26.6%	4.7%	21.4%	18.2%
31+	2.4	27.6%	5.0%	27.4%	6.2%	20.1%	13.7%	2.5	27.1%	4.4%	29.2%	4.8%	19.9%	14.6%
<b>Salary</b>														
<\$50,000	1.7	66.0%	1.4%	4.9%	2.6%	10.8%	14.3%	1.7	66.9%	1.4%	7.3%	2.0%	9.7%	12.6%
\$50,000-\$99,999	2.3	36.1%	3.0%	14.1%	5.0%	20.4%	21.5%	2.4	38.6%	2.6%	16.4%	3.7%	18.0%	20.7%
\$100,000-\$149,999	2.8	20.7%	3.2%	15.4%	6.9%	28.5%	25.3%	2.9	20.2%	2.8%	18.0%	4.9%	26.7%	27.2%
\$150,000+	2.7	21.1%	3.1%	17.9%	6.5%	28.7%	22.7%	2.8	21.1%	2.5%	19.6%	4.7%	27.6%	24.5%

Full-time employees as of December 31, 2012 -- Invalid or missing values are omitted.

**Table 7** looks only at the investment allocation into L funds by demographics. L2040 has the highest number of employees who have invested in the L funds. Those employees are mostly in the age group 20 to 39. Employees aged 40 to 59 are largely in the L2030 fund. And those aged 50 and above are mostly in the L2020 or L income fund. Employees with ten or fewer years of service or earning below \$100,000 annually are largely concentrated in the L2040 fund. Those with more than 10 year of service or with an annual salary of \$100,000 or more are highly concentrated in the L2020 fund or L2030 fund.

**Table 7. Lifecycle Funds' Investment Allocation by Participant Characteristics**

Demographics	L income fund	L2020 fund	L2030 fund	L2040 fund	L2050 fund
<b>Active Employees</b>					
All	5.9%	24.0%	27.0%	33.7%	9.4%
<b>Gender</b>					
Male	5.2%	22.4%	27.7%	33.7%	11.0%
Female	7.0%	26.2%	26.0%	33.7%	7.1%
<b>Minority Status</b>					
Minority	6.7%	21.1%	25.1%	36.9%	10.2%
White	4.7%	22.9%	28.3%	34.4%	9.8%
<b>Age (years)</b>					
<20	0.0%	0.0%	0.0%	0.0%	100.0%
20-29	0.9%	0.9%	5.3%	58.4%	34.4%
30-39	1.4%	2.2%	20.4%	63.0%	13.0%
40-49	2.8%	15.7%	45.9%	29.3%	6.4%
50-59	8.5%	48.3%	23.9%	14.6%	4.8%
60-69	25.2%	49.5%	8.7%	12.4%	4.2%
70+	43.8%	31.8%	6.4%	12.9%	5.0%
<b>Length of Service (years)</b>					
<5	1.7%	9.5%	24.9%	45.1%	18.8%
5-10	3.1%	14.8%	28.5%	44.7%	8.8%
11-20	5.8%	26.0%	34.0%	28.4%	5.8%
21-30	10.6%	45.9%	23.2%	15.4%	4.8%
31+	24.1%	48.8%	10.4%	12.4%	4.3%
<b>Salary</b>					
<\$50,000	5.7%	19.1%	24.6%	37.0%	13.5%
\$50,000-\$99,999	5.9%	23.0%	26.2%	35.2%	9.7%
\$100,000-\$149,999	5.9%	28.2%	30.5%	29.0%	6.4%
\$150,000+	7.0%	35.0%	31.3%	21.7%	5.0%

Full-time employees as of December 31, 2012 -- Invalid or missing values are omitted.



### 3.3 Annual TSP participation from 2008 to 2012

**Table 8** contrasts the annual TSP participation from 2008 through 2012. Over all five years, 2010 shows the highest number of active employees (2,371,724). There is a 3.1 percentage point increase in participation from 85.4 percent in 2008 to its highest rate of 88.5 percent in 2012. The average deferral and investment balance has increased as well. The market recovery following the recession and the increase in salary and allowable deferral amounts over the years may explain this rise, although the average deferral rate has slightly dropped from 8.1 in 2008 to 7.9 in 2012.

**Table 8. Summary Statistics of TSP Participation from 2008 to 2012**

Statistics	2008	2009	2010	2011	2012
Number of Active Employees	2,314,019	2,370,171	2,371,724	2,236,966	2,322,564
Participation Rate	85.4%	86.8%	88.0%	88.1%	88.5%
Ever Participate	94.2%	94.1%	94.5%	94.6%	94.8%
Average Salary	\$69,888	\$72,018	\$73,013	\$74,497	\$73,872
Average Deferral (Participants)	\$6,192	\$6,199	\$6,279	\$6,584	\$6,390
Average Deferral Rate (Participants)	8.1%	7.8%	7.9%	8.2%	7.9%
Average TSP Balance	\$72,255	\$80,657	\$84,311	\$99,416	\$95,977
Average Age (years)	46.1	46.2	46.4	47.1	47.8
Average Length of Service (years)	14.6	14.4	13.8	14.0	14.5
G Fund Only	38.9%	38.8%	39.7%	38.1%	39.6%
Above Agency Match	47.5%	46.8%	47.5%	50.6%	49.0%

Full-time employees as of December 31 of each year

**Figures 4 and 5** show the annual participation rates and deferral rates, respectively. In both graphs, FERS and the general population have similar trend. Their annual participation rates increased sharply from 2008 to 2009, and continued moderately to reach their highest points in 2012, close to 89 percent; whereas the participation rate for CSRS dropped sharply from 2008 to 2012 and remained constant afterward. In figure 4, the deferral rates for FERS and the general population fluctuated from year to year, while that of CSRS remains somewhat constant above 8.3 percent. In 2008, the deferral rate for FERS which was above 8 percent decreases to below 7.9 percent in 2009 (probably due to the economic down turn). It increased slightly from 2009 to 2010 and continued to rise until 2011, before dropping to about 7.9 percent in 2012.

Figure 4. Annual TSP Participation Rates for Full-time Employees, by Retirement System

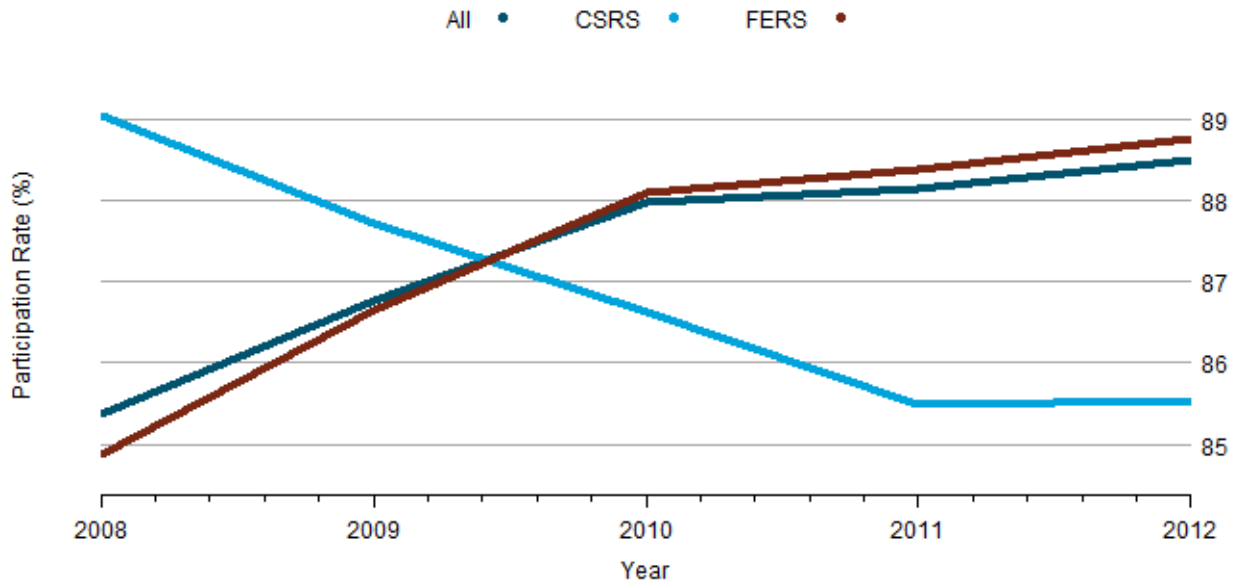
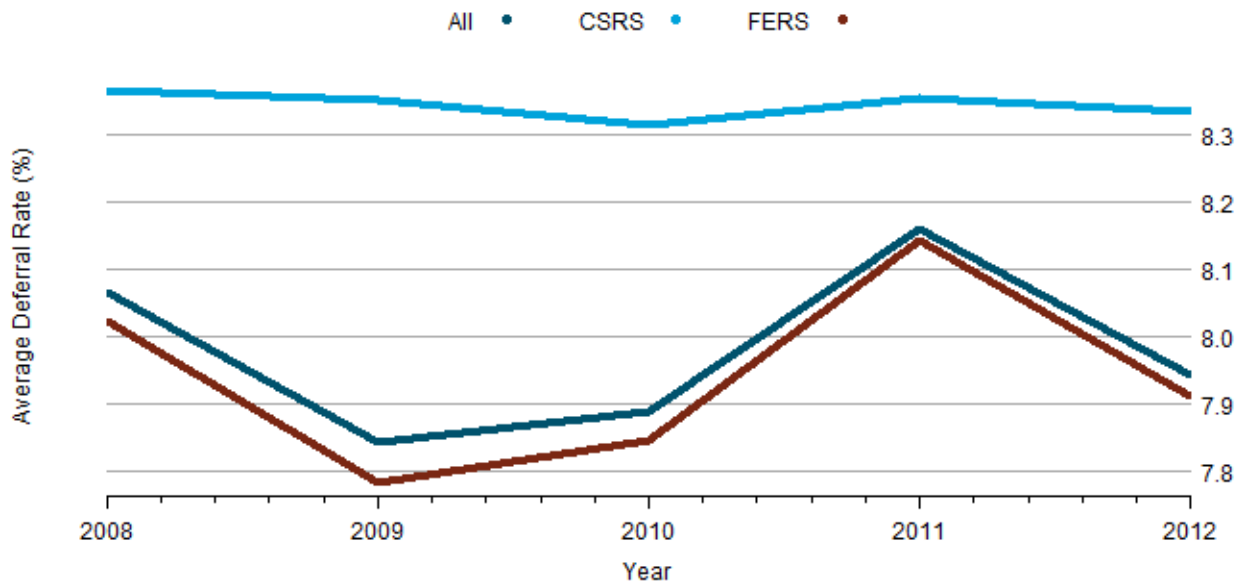


Figure 5. Annual TSP Participant Average Deferral Rates for Full-time Employees



**Table 9** presents the number of TSP participants and participation rates by demographics and retirement plan across years. The participation rate has increased more than 3 percent among men, women, minorities, whites, and FERS employees, from 2008 to 2012. The rate has decreased among CSRS employees, from 89.1% in 2008 to 85.5% in 2012. A similar trend is observable among senior employees aged 60 and above, and those with 21 and more years of service. The participation rate has risen sharply among employees below 20 years of age in 2012.

to 94 percent, up from 48.1 percent in 2008, although, the number of participants is comparatively low, 171 in 2012. Over the same time period, the rate went up substantially (more than 9 percent) among employees aged 20 to 29; with less than 5 years of service; and with salary less than \$50,000. This rise in participation among younger employees (including new hires) began in 2010 when the automatic enrollment was implemented.

**Table 9. Number of TSP Participants and Rates of Participation – by Demographics and Type of Retirement**

	2008	2009	2010	2011	2012
<b>Gender</b>					
Male	1,135,015 (85.5%)	1,181,749 (86.8%)	1,205,092 (88.1%)	1,139,251 (88.3%)	1,187,562 (88.7%)
Female	840,643 (85.2%)	874,855 (86.7%)	881,528 (87.8%)	832,395 (87.9%)	868,146 (88.3%)
<b>Minority Status</b>					
Minority	492,353 (81.6%)	529,133 (83.8%)	551,151 (85.7%)	527,243 (85.9%)	553,092 (86.4%)
White	1,044,956 (87.6%)	1,104,940 (89.3%)	1,124,371 (90.8%)	1,056,145 (91.3%)	1,109,499 (91.6%)
<b>Age (years)</b>					
<20	1,035 (48.1%)	913 (62.1%)	859 (87.3%)	211 (90.6%)	171 (94.0%)
20-29	170,278 (79.0%)	187,726 (84.4%)	186,832 (89.0%)	145,551 (90.5%)	136,189 (91.7%)
30-39	355,142 (83.3%)	375,594 (85.7%)	390,371 (87.9%)	363,720 (88.7%)	379,113 (89.5%)
40-49	637,912 (85.3%)	641,584 (86.3%)	638,894 (87.3%)	591,548 (87.3%)	578,006 (87.6%)
50-59	645,092 (87.7%)	666,483 (88.0%)	678,148 (88.2%)	670,625 (88.0%)	710,302 (88.1%)
60-69	157,754 (89.2%)	175,021 (89.1%)	181,854 (88.8%)	189,698 (88.5%)	237,531 (88.5%)
70+	8,448 (88.4%)	9,284 (88.4%)	9,663 (87.9%)	10,298 (87.7%)	14,400 (88.0%)
<b>Length of Service (years)</b>					
<5	389,399 (80.2%)	437,858 (82.3%)	509,346 (85.2%)	492,684 (88.3%)	483,596 (90.1%)
5-10	409,295 (85.9%)	419,073 (86.8%)	433,976 (87.9%)	441,047 (87.9%)	469,026 (87.6%)
11-20	502,488 (88.6%)	491,207 (88.3%)	461,772 (88.4%)	457,336 (88.0%)	478,999 (87.8%)
21-30	469,734 (89.8%)	476,136 (89.4%)	469,306 (89.1%)	457,068 (88.9%)	477,384 (89.1%)
31+	125,646 (89.4%)	133,905 (88.1%)	119,532 (87.0%)	121,911 (86.2%)	146,690 (86.4%)
<b>Salary</b>					
<\$50,000	404,116 (73.9%)	386,986 (77.2%)	382,236 (80.8%)	321,055 (80.9%)	365,233 (82.7%)
\$50,000-\$99,999	1,224,586 (87.5%)	1,274,497 (87.8%)	1,296,663 (88.3%)	1,244,343 (88.1%)	1,277,150 (88.3%)
\$100,000-\$149,999	289,165 (94.4%)	323,134 (94.6%)	333,054 (94.8%)	332,038 (94.8%)	336,830 (94.8%)
\$150,000+	56,012 (94.5%)	69,394 (95.1%)	72,193 (95.6%)	71,707 (95.8%)	73,689 (95.8%)
<b>Retirement System</b>					
FERS	1,723,049 (84.9%)	1,832,827 (86.7%)	1,899,168 (88.1%)	1,813,142 (88.4%)	1,896,430 (88.8%)
CSRS	252,612 (89.1%)	223,778 (87.7%)	187,453 (86.6%)	158,509 (85.5%)	159,282 (85.5%)

Full-time employees as of December 31 of each year -- Invalid or missing values are omitted.

### 3.4 Automatic enrollment into the TSP from 2010 to 2012

**Table 10** presents the summary statistics for TSP automatic enrollment from 2010 to 2012. In 2012, around 9 percent of the 2,322,564 active employees were exposed to automatic enrollment. Of the 215,613 active employees who were automatically enrolled in TSP, 99.2 percent contribute to the TSP, compared with 99 percent in 2011 and 98.7 percent in 2010. Overall, the average deferral rate increased from 3.7 percent in 2010 to 5.4 percent in 2011, and thereafter decreased to 4.5 percent in 2012. It is worth noting that in 2011, auto-enrolled employees received higher average salary than in the other two years. This may explain the greater deferral balance and rate during that year. Furthermore, participants in 2011 held comparatively more funds (1.7) and had a higher average investment balance (\$16,793).. During the same year, 30.4 percent of those employees contributed above the 5 percent agency matching contribution, which is twice the proportion in 2010. From 2010 to 2012, the proportion of auto-enrollees who invested solely in the G fund decreased from 75.7 percent to 72.9 percent.

Note that in all 3 years, the average length of service of auto-enrollees was below 3 years. Thus, to be able to compare these figures to similar data for 2008 (2 years prior to the implementation of the automatic-enrollment), the active employees' records are restricted to those with 3 or fewer years of service (presumably, new hires) in 2008 and those automatically enrolled with similar length of service in 2012. The results of the analysis are presented in the next tables and figures.

**Table 10. Automatic Enrollment: Summary Statistics of TSP Participation from 2010\* to 2012**

Statistics	2010	2011	2012
Number of Active Employees	156,167	144,418	215,613
Participation Rate	98.7%	99.0%	99.2%
Ever Participate	99.8%	99.9%	99.9%
Average Salary	\$59,572	\$62,100	\$60,255
Average Deferral (Participants)	\$2,461	\$3,648	\$2,988
Average Deferral Rate (Participants)	3.7%	5.4%	4.5%
Average TSP Balance	\$9,229	\$16,793	\$13,114
Average Age (years)	38.7	39.7	40.2
Average Length of Service (years)	2.4	2.0	2.4
Average Number of Funds Held	1.5	1.7	1.6
G Fund Only	75.7%	68.3%	72.9%
Above Agency Match	15.1%	30.4%	22.9%

Full-time employees as of December 31 of each year -- \*2010: implementation of auto-enrollment

### **3.5 TSP participation for 3 or less years of service in 2008 & 2012**

**Table 11** compares the TSP participation patterns for employees with 3 or fewer years of service in 2008 and employees with similar length of service and automatically enrolled in 2012. The number of active employees with the aforementioned characteristics is 312,357 in 2008 vs. 184,837 in 2012. Across all demographics, the participation rates of 2012 exceed considerably those of 2008. The largest disparity is among employees under age 20; there is a 42.8 percentage point difference. Employees with less than 1 year of service have the highest participation rate, 99.8 percent of 184,837 active employees. On the other hand, the overall average deferral rate – 6.1 percent is 1.7 percentage points greater for 2008 than for 2012, for which the rate was just 4.4 percent. A similar trend is observable across all demographic levels. The figures of the following measures – average deferral, average TSP balance, and contribution above the 5 percent agency contribution – were also, in general, higher in 2008 than in 2012.

**Table 11. TSP Participation for Participants with 3 or Less Years of Service in 2008 and Auto-Enrolled in 2012 – by Demographics and Type of Retirement**

	Number of Active Employees		Participation Rate		Average Deferral (Participants)		Average Deferral Rate (Participants)		Average TSP Balance		Above Agency Match		G Fund Only	
	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012
<b>Active Employees</b>														
All	312,357	184,837	78.2%	99.5%	\$4,026	\$2,876	6.1%	4.4%	\$11,247	\$10,417	29.8%	22.1%	67.8%	74.7%
<b>Gender</b>														
Male	172,754	110,864	77.8%	99.5%	\$4,339	\$3,044	6.4%	4.5%	\$12,131	\$11,185	32.9%	24.1%	63.5%	70.5%
Female	139,601	73,973	78.6%	99.4%	\$3,643	\$2,624	5.7%	4.1%	\$10,155	\$9,267	26.0%	19.1%	73.3%	80.9%
<b>Minority Status</b>														
Minority	98,240	57,260	75.8%	99.4%	\$3,735	\$2,642	5.8%	4.2%	\$9,828	\$9,258	27.2%	20.6%	75.0%	81.1%
White	186,300	120,831	80.0%	99.5%	\$4,309	\$3,070	6.3%	4.5%	\$12,371	\$11,335	31.2%	23.6%	63.0%	70.8%
<b>Age (years)</b>														
<20	957	153	55.2%	98.0%	\$1,808	\$621	4.8%	1.9%	\$2,057	\$1,219	17.2%	4.6%	92.0%	95.4%
20-29	93,767	43,733	79.8%	99.4%	\$2,899	\$1,964	5.2%	3.8%	\$7,363	\$5,956	25.5%	18.9%	66.9%	75.8%
30-39	83,372	54,834	79.7%	99.4%	\$3,740	\$2,601	5.6%	4.0%	\$10,797	\$9,105	28.1%	20.0%	65.3%	73.7%
40-49	81,090	48,905	76.1%	99.6%	\$4,417	\$3,024	6.5%	4.4%	\$12,632	\$11,757	31.4%	22.3%	68.4%	74.0%
50-59	45,577	30,592	77.0%	99.5%	\$5,828	\$4,015	8.0%	5.4%	\$16,608	\$15,442	37.8%	28.3%	71.7%	75.2%
60-69	7,302	6,354	74.0%	99.5%	\$6,961	\$4,798	8.7%	5.9%	\$18,269	\$17,672	39.3%	31.3%	75.2%	77.7%
70+	292	266	60.6%	99.6%	\$7,754	\$4,933	9.0%	5.6%	\$20,962	\$22,246	30.8%	29.7%	84.2%	79.7%
<b>Length of Service (years)</b>														
<1	119,102	59,994	74.8%	99.8%	\$3,635	\$1,597	5.6%	2.6%	\$6,617	\$4,925	24.9%	7.3%	76.6%	82.8%
1	97,618	75,493	79.1%	99.5%	\$4,091	\$3,337	6.2%	5.1%	\$11,748	\$11,224	30.8%	26.9%	66.7%	73.6%
2	91,079	48,858	81.6%	99.0%	\$4,403	\$3,723	6.6%	5.4%	\$16,465	\$15,911	34.9%	32.9%	58.0%	66.4%
3	4,558	492	77.3%	97.2%	\$4,538	\$2,896	6.7%	4.5%	\$17,284	\$10,903	33.4%	23.2%	59.3%	75.8%
<b>Salary</b>														
<\$50,000	150,940	86,980	70.9%	99.4%	\$2,075	\$1,410	5.1%	3.6%	\$5,058	\$4,682	20.7%	15.1%	79.0%	84.2%
\$50,000-\$99,999	138,249	82,483	84.3%	99.5%	\$4,573	\$3,433	6.6%	4.9%	\$13,876	\$12,769	35.4%	26.0%	58.8%	67.8%
\$100,000-\$149,999	17,788	11,372	89.4%	99.6%	\$10,035	\$7,486	8.6%	6.4%	\$33,158	\$28,641	54.5%	41.1%	47.2%	56.3%
\$150,000+	5,058	3,586	88.1%	99.7%	\$13,958	\$10,069	8.0%	5.6%	\$44,751	\$35,984	64.4%	45.0%	53.2%	61.3%

Full-time employees as of December 31 of each year -- Invalid or missing values are omitted.

**Table 12** compares the 2008 and 2013 average numbers of funds held and assets allocated by participants with three or fewer years of service to the G, F, C, S, I, and L funds. Overall, the 2008 active employees hold, on average, more funds than those of 2012 – with greater proportion holding I fund and L fund in 2008. Auto-enrollees in 2012 tend to invest more in F, C, and S funds than 2008 employees. In both years, the proportion of employees with money allocated in the G fund only is comparatively high among women (vs. men), minorities (vs. whites) and lower levels (vs. higher levels) in the age, length of service and salary categories. Furthermore, the proportion of employees who only invested in the G fund was larger in 2012 than that in 2008.



**Table 12. Average Number of Funds Held and Asset Allocation for Participants with 3 or Less Years of Service in 2008 and Auto-Enrolled in 2012**

	Average Fund		G Fund Only		F Fund		C Fund		S Fund		I Fund		L Funds	
	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012
<b>Active employees</b>														
All	1.7	1.5	67.9%	74.7%	0.6%	0.9%	1.3%	1.4%	0.9%	2.1%	11.7%	6.7%	17.1%	14.1%
<b>Gender</b>														
Male	1.7	1.6	63.5%	70.5%	0.6%	1.2%	1.5%	1.7%	1.2%	2.7%	14.2%	8.0%	18.6%	15.9%
Female	1.5	1.4	73.3%	80.9%	0.5%	0.5%	1.1%	1.1%	0.6%	1.3%	8.7%	4.7%	15.3%	11.5%
<b>Minority Status</b>														
Minority	1.6	1.4	75.0%	81.1%	0.5%	0.7%	1.1%	1.2%	0.6%	1.7%	9.8%	5.2%	12.6%	10.2%
White	1.7	1.6	63.1%	70.8%	0.6%	1.0%	1.4%	1.6%	1.1%	2.4%	13.1%	7.6%	20.3%	16.5%
<b>Age (years)</b>														
<20	1.2	1.1	92.0%	95.4%	0.0%	0.0%	0.7%	0.7%	0.1%	0.0%	3.4%	2.0%	3.7%	2.0%
20-29	1.7	1.5	66.9%	75.8%	0.4%	0.6%	1.0%	1.1%	0.8%	1.8%	12.0%	6.0%	18.9%	14.6%
30-39	1.7	1.5	65.3%	73.7%	0.5%	0.7%	1.2%	1.0%	1.0%	1.9%	12.8%	6.7%	19.1%	15.9%
40-49	1.6	1.6	68.5%	74.0%	0.7%	1.0%	1.6%	1.7%	1.0%	2.4%	11.4%	7.3%	16.5%	13.7%
50-59	1.6	1.5	71.9%	75.2%	0.9%	1.4%	1.7%	2.0%	1.0%	2.5%	10.2%	6.7%	13.2%	12.2%
60-69	1.5	1.4	76.1%	77.7%	1.0%	1.9%	1.9%	2.1%	1.2%	2.7%	9.9%	6.5%	6.8%	9.1%
70+	1.3	1.3	84.8%	79.7%	1.4%	1.1%	1.0%	4.1%	0.7%	2.3%	7.9%	6.4%	3.4%	6.4%
<b>Length of Service (years)</b>														
<1	1.5	1.3	76.7%	82.8%	0.5%	0.7%	1.1%	1.3%	0.8%	1.5%	7.7%	4.4%	12.9%	9.3%
1	1.7	1.5	66.8%	73.6%	0.6%	1.0%	1.3%	1.5%	0.9%	2.4%	12.0%	7.0%	18.0%	14.6%
2	1.9	1.7	58.0%	66.4%	0.6%	1.1%	1.6%	1.5%	1.2%	2.6%	16.3%	9.0%	21.6%	19.4%
3	1.9	1.5	59.5%	75.8%	0.4%	0.8%	1.4%	1.0%	1.3%	1.4%	16.8%	6.7%	19.9%	14.2%
<b>Salary</b>														
<\$50,000	1.4	1.3	79.1%	84.2%	0.4%	0.6%	1.0%	1.0%	0.6%	1.4%	7.9%	4.1%	10.7%	8.8%
\$50,000-\$99,999	1.8	1.7	58.9%	67.8%	0.7%	1.2%	1.5%	1.7%	1.2%	2.6%	14.6%	8.4%	22.7%	18.3%
\$100,000-\$149,999	2.1	1.9	47.2%	56.3%	1.0%	1.6%	2.3%	2.7%	1.8%	3.9%	19.7%	12.6%	27.3%	22.9%
\$150,000+	1.9	1.8	53.4%	61.3%	0.8%	1.6%	2.7%	2.6%	1.1%	2.7%	18.1%	11.6%	23.2%	20.2%

Full-time employees as of December 31 of each year -- Invalid or missing values are omitted.

**Figures 6-9** look only at employees with 3 or fewer years of Federal service in 2008 and those with the same years of service and automatically enrolled in TSP in 2012. Figure 6 shows that the participation rates across all length of service levels remain consistently high in 2012; whereas those of 2008 are comparatively lower and increase to close to 80 percent for those with 2 years of service before decreasing thereafter. In contrast, in Figure 7, the average deferral rate increases as length of service increases in 2008. The 2008 rate remains well above that of 2012. The latter rises to more than 5 percent for those with 2 years of service, and drops afterward. Figure 8 shows that of those with less than 1 year onboard, fewer than 10 percent of auto-enrollees have contributed above the 5 percent agency matching contribution in 2012, compared with close to 25 percent for those in 2008. Figure 9 reveals again that the proportion of employees who invested solely in the G fund was greater in 2012 than in 2008, and it was mostly high at the beginning of their Federal service.

Figure 6. TSP Participation Rates for Full-time Employees with 3 or Less Years of Service in 2008 and Auto-Enrolled in 2012

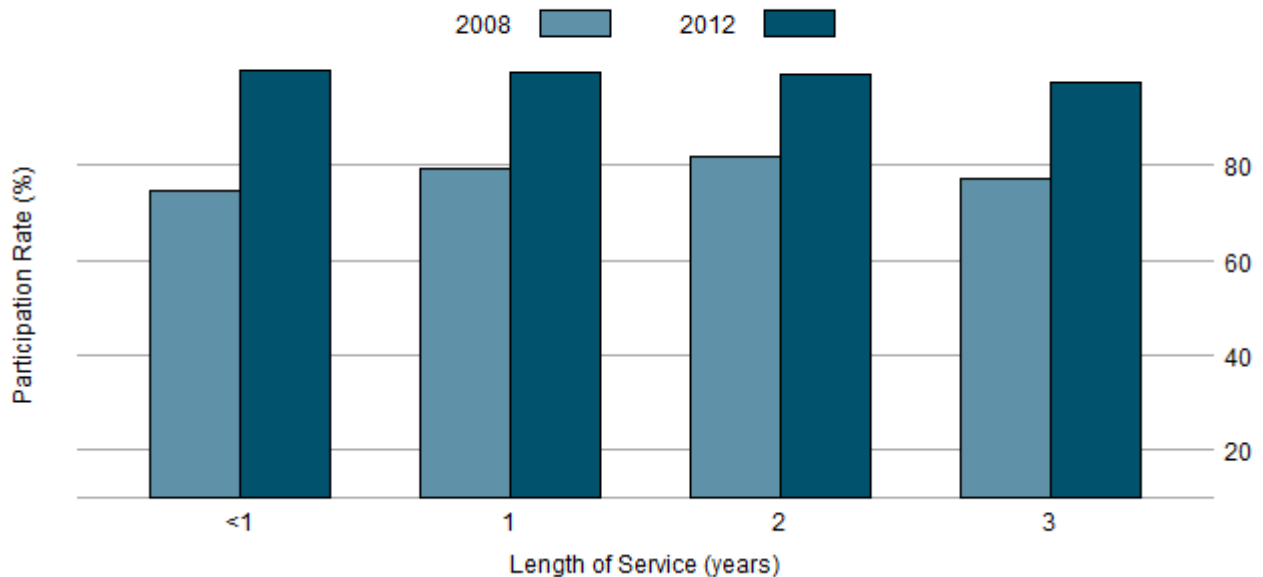


Figure 7. TSP Participant Deferral Rates for Full-time Employees with 3 or Less Years of Service in 2008 and Auto-Enrolled in 2012

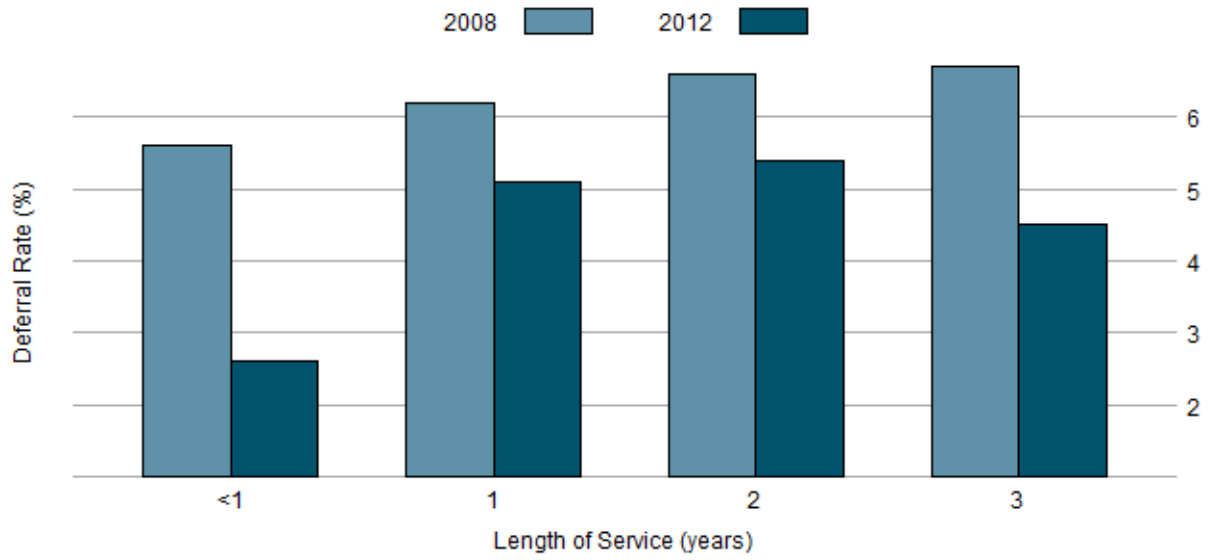


Figure 8. Proportion of Full-time Employees with 3 or Less Years of Service in 2008 and Automatic Enrolled in 2012 -- who Contributed Above Agency Match

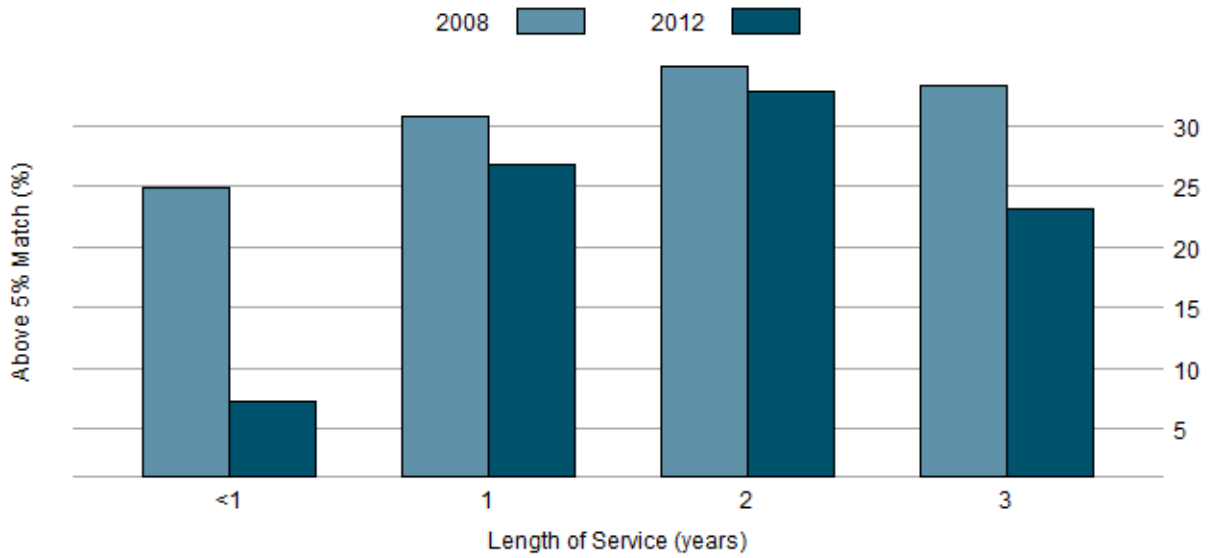
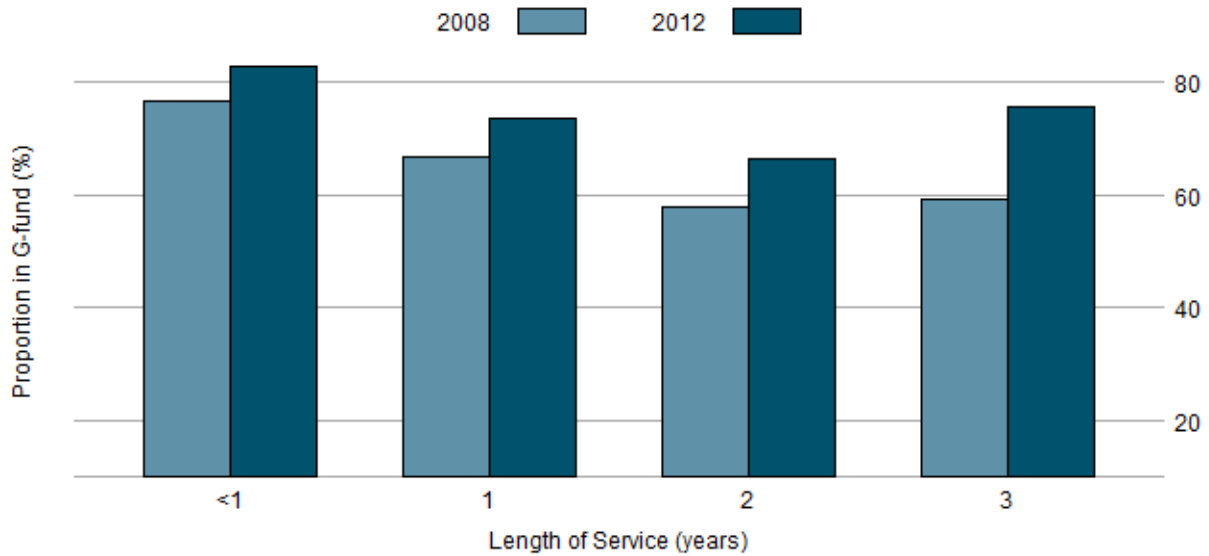


Figure 9. Proportion of Full-time Employees with 3 or Less Years of Service in 2008 and Automatic Enrolled in 2012 -- who Invested in G-fund Only



### 3.6 Limitations

Records with missing or invalid values are omitted from all tables. For instance, statistical figures for about 24.5 percent of total employees with unspecified race/ethnicity codes in 2012 are not reported in the tables – thus, participation patterns and trends by minority status for this population have not been examined in this report. However, since the number of active employees with complete information is substantially large, this population may represent those with incomplete information. Note that minority denotes the following categories: Asian, Black, Hispanics, and other minority groups as specified in the appendix. Approximately 20 percent of Race/Ethnicity indicators were unavailable (mostly U.S. Postal Service) for each year.

As described in the method section, the data acquired for this analysis include only employees in TSP data with match records in the OPM data. Therefore, the participation rate is limited to this population. It does not include TSP eligible employees who opted out and never participated in the TSP.

The deferral rate is estimated using the annual adjusted basic pay reported in the OPM database as of December 2012. This annual rate is a snapshot figure at the end of the calendar year. To account for the variation in salary (especially seasonal employees), our analysis is limited to nonseasonal full-time active employees.

#### 4. Discussion and Summary of Findings

The results from this analysis indicate that overall, the participation rate has increased about 3 percentage points to 88.7 percent by the end of 2012, from 85.4 percent in 2008. This increase is mostly attributable to the automatic enrollment. Since its implementation in August 2010, the participation rate among employees with less than one year of service has risen from 74.8 percent in 2008 to 99.8 percent in 2012. The 2012 FRTIB Report reveals similar trends; it suggests that automatic enrollment helped produce a 16 percentage points increase in participation among the shortest-tenured employees – those with fewer than two-years of tenure now participate at a rate of 97.8 percent.<sup>1</sup> (Note that the FRTIB report is limited to FERS full-time nonseasonal employees and a different approach was used in the analysis; therefore, the reported figures may be slightly different from those in the current report.)

Prior to the implementation of automatic enrollment, senior employees (those with 21 and more years of service) had the highest participation rate. Now, newest employees (those with fewer than 3 years of service) have the highest participation rate. This enrollment method has reduced gender and race/ethnicity differences in participation. For instance, a difference of 4.2 percentage points in participation rate between whites and minorities in 2008 was reduced to 0.5 of a percentage point in 2012 among newly hired employees. Over time, automatic enrollment could substantially reduce the overall workforce participation differences associated with gender and (non-) minority groups. Furthermore, a study conducted with private sector retirement investment data has shown that the use automatic plan design features does, indeed, reduce racial and ethnic disparity.<sup>4</sup>

Although automatic enrollment has contributed to the participation of newly hired employees, it does not have the same effect on the employees' deferral. In 2005, before the recession (which was 8.6 percent, according to the 2006 FRTIB Report<sup>2</sup>; that rate increased to 9.1 percent in 2007 according to the 2008 OPM Report<sup>3</sup>; it went down to 7.1 percent in 2009; and it is now 7.9 percent. As in the case of plan participation, automatic enrollment tends to reduce differences in deferrals between men and women, and between whites and minorities, among newly hired employees. However, the deferral rate has decreased 0.7 of a percentage point since 2005, despite the institution of automatic enrollment. Furthermore, about 2 years after the downturn, the rate went up slightly to 8.2 percent in 2011, before declining 0.3 percentage point to 7.9 percent in 2012. Although the contribution limits from 2011 to 2012 changed by \$500, from \$22,000 to \$22,500, employees earned less on average – the overall average salary went down by approximately 0.8 percent since 2011.

By the end of 2012, close to half of FERS participants deferred less than 5 percent of their salary. Those participants are not receiving the full agency matching contribution. The results of this analysis also show that age, tenure, gender, race/ethnicity, and income level influence considerably the contribution of participants. On average, older, longer-tenured, men, whites and

high income employees tend to defer more of their salary compared with younger employees, new hires, women, minorities, and low income employees, respectively. The 2007 TSP participants show similar patterns of deferral<sup>3</sup>. As expected, participants with lower salary exhibit different investment behavior compared to those with higher salary.

Overall, about 40 percent of active employees invest solely into a low risk G fund. Those employees are conservative in their investment behavior. A large proportion (above 40 percent) of minorities and women invested solely in the G fund. On average, their salary is lower than whites and men, respectively. It appears that lower average salary may cause these groups to invest less aggressively. Before age 50, men tend to take more risk in their retirement investment than women. TSP participation, contributions, investments and savings appear to be highly related to income level. As retirement approaches (at age 50 and above), men become as conservative as women – a higher proportion of men invest solely in the G fund. Younger and newly hired employees, who tend to receive lower salary and are perhaps less educated in retirement investment, hold, on average, fewer investment funds, mostly with their money defaulted into the G fund.

The results also indicate a large proportion of employees with fewer than 3 years of service who were auto enrolled in the TSP held solely the G fund (75 percent) in 2012, compared with only 68 percent of those in 2008 with similar tenure but not auto-enrolled. Three percent of auto-enrollees' salary is allocated automatically into the G fund. There seems to be significant inertia, as it appears that most tend to remain invested in the default fund – investing comparatively less in other funds. This finding is consistent with the FRTIB report revealing that automatically enrolled employees remain “unengaged” or otherwise make no investment/deferral election.<sup>1</sup>

The data reveals that as of December 31, 2012, 34 percent of employees who had invested in the Lifecycle (L) funds (introduced in August 2005) expected to retire between 2035 and 2040. The L2020 fund represents the third largest L fund by investment, with 24 percent of employees likely to retire between 2015 and 2024; it is followed by 9 percent in the L2050 fund for those expecting to retire in 2045 or later; and lastly 6 percent in the L income fund for those expecting to retire before 2015.

In general, it appears that participants invest in the life cycle funds accordingly, with respect to their age and length of service. All employees under age 20 (most likely with similar length of service), have invested in the L2050. Those aged between 20 and 49 have invested mostly in the L2030, L2040, or L2050 funds; and those aged 50 and above have invested mostly in the L2020 or L income funds. The 2006 FRTIB Report also described similar trends – younger employees heavily allocated to the L2030 and L2040, and older participants more heavily allocated to the L2020 or L income funds<sup>2</sup>. We also found that the majority of those with 10 or fewer years of service have invested in the L2040 fund and the majority of senior employees with 21 or more years of service invested in the L2020 fund. Men and women are almost equally distributed across all L-funds. We observe similar patterns for whites and minorities. Apparently, gender

and minority status have less effect on how investment is allocated into the L funds than age and tenure do.

In this descriptive analysis we describe the patterns and trends of TSP participation and investment by demographics (gender, minority status, tenure and salary) and retirement systems (FERS and CSRS) over the years 2008 through 2012, before and after the institution of automatic enrollment in August 2010. Further analysis is warranted to examine the impact of automatic enrollment on TSP participation by demographics, especially by Race/Ethnicity where Asians tend to have different participation and investment behavior than other minorities, e.g., Blacks and Hispanics. Note that the current findings are generalized to the overall population mostly in the Federal executive branch and Postal service. This analysis could be conducted at the agency-level for more specific results.

## 5. References

1. Federal Retirement Thrift Investment Board. *2012 Annual Report of the Thrift Savings Plan*, 2013.
2. Federal Retirement Thrift Investment Board. *Participants Behavior and Demographics*, 2007.
3. Office of Personnel Management. *Federal Employee Participation Patterns in the Thrift Savings Plan Calendar Year 2007*, 2008.
4. Cynthia A. Pagliaro and Stephen P. Utkus. *Diversity and Defined Contribution Plans: The Role of Automatic Plan Features*, 2011.



## Appendix

### Internal Revenue Service contribution limits by year

(<https://www.tsp.gov/planningtools/retirementplanning/maximumAmount.shtml> )

Years	Regular Contributions	Catch-Up Contributions	Total Contributions
2012	\$17,000	\$5,500	\$22,500
2011	\$16,500	\$5,500	\$22,000
2010	\$16,500	\$5,500	\$22,000
2009	\$15,500	\$5,500	\$22,000
2008	\$15,500	\$5,000	\$20,500

### TSP-OPM matched data counts by Year

Years	Number of Records Received	Number of Records Used in the Analysis
2012	2,450,107	2,322,564
2011	2,351,076	2,236,966
2010	2,503,270	2,371,724
2009	2,543,777	2,370,171
2008	2,483,282	2,314,019

### Key variable definitions

- **Calendar Year:** Time period covered by the TSP data – January 1 through December 31.
- **Active employees:** Currently non-seasonal full-time employed participant (on board as of December 31, 2008-2012) who did or did not contribute to the TSP during the calendar year. The data match constitutes only active employees and not separated employees.
- **Participant:** Employee who contributed his/her money to the TSP during the calendar year.
- **Participation rate:** Annual percentage of employees who contributed to the TSP. That is calculated as the total number of participants divided by the total number of active employees during each calendar year.
- **Non-participant:** Employee who did not defer any amount during the calendar year – so having total contributions equal to zero.
- **Ever Participated:** Employee who ever contributed his/her own money to the TSP. That is derived from the “first employee contribution date” variable – which indicates the date one first contributed to the TSP.

- **Salary:** Employee's annual adjusted basic salary as of December – set between \$5,000 and \$300,000 to obtain valid values for the current population.
- **Contribution:** Employee's share of TSP dollar amounts contributed during each year.
- **Deferral Rate:** Percentage of employee's annualized salary deferred to the TSP. That is approximated as the employee's contribution divided by his/her salary as of December 31 of that year. To minimize the effect of extreme values on the estimate, deferral rate does not include Contributions that are below \$100 and Salary less than \$5,000 and greater than \$300,000.
- **TSP Balance:** Accumulated sum of all TSP fund balances as of December 31 of that year. It includes employee and agency contributions from current and previous year(s), as well as investment returns.
- **G Fund Only:** Indicator variable specifying if all TSP funds are allocated to the no-risk G Fund.
- **Above Agency Match:** Indicator variable specifying whether an employee's deferral rate was greater than the current agency maximum matching contribution of five percent. Only FERS employees are entitled to this benefit.
- **Minority:** non-white employee. Includes American Indian or Alaskan Native; Asian; Black or African American; Native Hawaiian or Pacific Islander; More than one race; Hispanic or Latino (H/L); H/L and American Indian or Alaskan Native; H/L and Asian; H/L and Black or African American; H/L and Native Hawaiian or Pacific Islander; H/L and White; and H/L and of more than one race.
- **Age:** Employees' age – number of years between date of birth (in years and months) and OPM file date (December 2008-2012).
- **Length of service:** Number of years in Federal service between Service Computation Date (generally the date when one was hired) and OPM file date.
- **Lifecycle Funds:** The "Lifecycle" or L Funds introduced in August 2005, are composed of five funds: L Income, L 2020, L 2030, L 2040, and L 2050. The L funds are invested in the G, F, C, S, and I funds for a particular target date (such as retirement date) elected by the participant.
- **Automatic enrollment:** Applied to FERS and CSRS employees hired or rehired (those with a break in service less than 30 days) after July 31, 2010. For the current analysis, automatic enrollment denotes auto-enrolled newly hired or rehired employees; auto-enrolled participants who have made an investment decision or loan/withdrawal transaction; and auto-enrolled participants who subsequently changed their deferral rate. Three percent of employee salary are automatically deducted per pay period and deposited into their TSP accounts, unless the employee opts out.



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