

# memorandum

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**To** Monisha Martinez Pardo and John Jones, Social Security Administration

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**Subject** Exits from SSDI Benefits for Work and Medical Improvement and Post-Exit Experiences: Insights from the Benefit Offset National Demonstration

This memo uses data from the Benefit Offset National Demonstration (BOND) evaluation to explore exits from SSDI benefits for Work and Medical Improvement, and to examine the effects of random assignment to the BOND treatment groups on patterns of exits for work and medical improvement.

## 1. Introduction

In 2019, nearly 40,000 Social Security Disability Insurance (SSDI) beneficiaries had their SSDI benefits terminated after a medical continuing disability review (CDR) found that their medical condition had improved, and over 62,000 had their benefits terminated due to earnings above the Substantial Gainful Activity (SGA) threshold (SSA 2020). Some of the beneficiaries whose benefits are terminated due to work or medical improvement later return to SSDI benefits – prior research has found that roughly 18 percent of those who exit for medical improvement return within 5 years, as do 34 percent of SSDI-only beneficiaries who exit for work and 51 percent of concurrent beneficiaries who exit for work (Anderson et al. 2022).

In two papers, Hemmeter and Bailey consider post-exit experiences of beneficiaries whose benefits are terminated due to medical improvement and find substantial return to disability programs and low levels of earnings. Hemmeter and Stegman (2013) analyzed the experiences of former SSDI beneficiaries and SSI recipients whose benefit entitlement terminated after a full medical review between 2003 and 2008. The authors examined subsequent program participation and found that 20 percent of former SSDI beneficiaries and 30 percent of former SSI recipients had returned to the program within eight years. Hemmeter and Bailey (2016) expanded on the previous analysis to explore labor market outcomes for SSDI beneficiaries who had a full medical review between 1998 and 2008. Hemmeter and Bailey (2016) found that 5.7 percent of SSDI beneficiaries who had a full medical review had SSDI entitlement terminated due to a finding of medical recovery. The authors also found that this group of former beneficiaries had relatively poor labor market outcomes after their exit from SSDI. While 70 percent had earnings at some point during the five years following termination due to medical recovery, only 37 percent had earnings in all five years. Earnings for SSDI beneficiaries exiting due to medical recovery averaged \$13,000 per year. While about half (52 percent) of these former beneficiaries earned more than the annual equivalent of the SGA threshold in at least one year after program exit, only 20 percent consistently earned more than the annual equivalent of the SGA threshold.

Hemmeter and Bailey (2016) pointed to the need for further research about whether services or assistance provided at or near the time of exit due to medical recovery could improve subsequent labor market outcomes. To address this need, SSA launched the Beyond Benefits Study in 2021 to explore SSDI beneficiaries' and SSI recipients' service needs before and after exiting the disability

programs due to medical recovery. SSA is collecting information about service needs to help SSA consider potential intervention designs.

Anderson et al. (2022) compare outcomes for SSDI-only and concurrent beneficiaries whose lost entitlement to SSDI because of medical recovery to those whose entitlement was terminated due to work. They focus on beneficiaries who exit SSDI from 2005 through 2014. In the first five years after exit, Anderson and coauthors find higher rates of return to SSDI among beneficiaries whose entitlement terminated due to work. That is, 34 percent of SSDI only beneficiaries returned to SSDI in the five years after termination due to work, compared to 16 percent of SSDI only beneficiaries terminated for medical recovery. Similar to Hemmeter and Bailey, Anderson and coauthors also find that beneficiaries who exit due to medical recovery have poor labor market outcomes. Fewer than half of those who exit due to medical recovery had earnings above the poverty level in the five years after exit. Even though beneficiaries terminated due to work were more likely to return to SSDI within five years, they had higher earnings on average than beneficiaries terminated due to medical recovery. Beneficiaries whose benefits are terminated due to work can be eligible for expedited reinstatement of benefits, but no such provision exists for beneficiaries whose benefits are terminated due to medical improvement. This may be a factor in the comparatively higher rate of return to SSDI. Given the higher rate of return to SSDI for beneficiaries terminated due to work, Anderson et al. (2022), suggest that SSA may want to consider expanding the target population for the Beyond Benefits study to include SSDI beneficiaries whose entitlement ends due to work.

This memo adds to previous research that has examined the experiences of SSDI beneficiaries whose benefit entitlement terminates because of medical recovery or work by exploring exit and post-exit experiences in the context of the Benefit Offset National Demonstration (BOND). BOND tested changes to SSDI program rules governing work and other supports. In Stage 1, a nationally representative sample was randomly assigned to either be subject to a \$1-for- \$2 benefit offset allowing beneficiaries to retain some of their monthly cash benefit while working, or current law rules. In Stage 2, a sample of volunteers was randomly assigned to the benefit offset, benefit offset with access to enhanced benefits counseling, or a control condition subject to current-law rules and standard benefits counseling. The BOND evaluation found no statistically significant evidence of an impact of the benefit offset policy on average earnings in either stage, though treatment subjects were more likely to have some employment and to earn more than annualized SGA in at least one year (Gubits et al. 2018). The offset also increased the average amount of SSDI benefits due to beneficiaries.

This memo uses data from the BOND evaluation to understand exits and post-exit experiences for Control subjects, who are representative of the broader SSDI population and were subject to current-law benefit rules. It also explores difference in patterns of exit for BOND subjects in the treatment and control groups. Specifically, we address the following research questions:

- How do beneficiaries in the C1 group whose benefits were terminated due to medical improvement from 2011-2017 differ at baseline from those whose benefits were terminated due to work during this period?
- How do post-exit experiences of beneficiaries in the C1 group whose benefits were terminated due to medical improvement from 2011-2017 differ from those of beneficiaries in the C1 group whose benefits were terminated due to work during this period?
- What percentage of BOND subjects experienced benefit termination due to work or medical improvement, for each year 2011-2020 and cumulatively over this period?

- Did access to the BOND benefit offset rules affect benefit terminations due to medical improvement?

## **2. Characteristics of Beneficiaries who Exit for Work and Medical Improvement**

We begin by comparing the baseline characteristics of those who exit due to medical improvement and those who exit due to work. We focus on Stage 1 control subjects, who are nationally representative of SSDI beneficiaries and were subject to current-law benefit rules. For this population, we identify beneficiaries whose benefits were terminated due to work between 2011 and 2020, as well as those whose benefits were terminated due to medical improvement during this period.<sup>1</sup> We then compare the characteristics of those who exit due to work and those who exit due to medical improvement.

Compared to beneficiaries who exit due to medical improvement, beneficiaries who exit due to work are older, less likely to be concurrent SSDI/SSI beneficiaries, less likely to be Disabled Adult Children, more likely to receive benefits as a Disabled Widow(er), less likely to have a primary diagnosis of neoplasm, mental disorder, circulatory system disorder, or severe visual impairment, and more likely to have a primary diagnosis of back or other musculoskeletal, respiratory, or digestive impairment (**Exhibit 1**). They also have larger monthly benefit amounts. These larger monthly benefits, as well as lower rates of concurrent SSI benefit receipt, suggest that beneficiaries whose benefits are terminated due to work may have had more extensive work histories than those whose benefits are terminated due to medical improvement.

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<sup>1</sup> Beneficiaries with more than one benefit termination during this period are coded based on their first benefit termination for either work or medical improvement.

Exhibit 1. Comparison of SSDI Beneficiaries with Benefit Termination due to Work or Medical Improvement during 2011-2020, BOND C1

	Benefit termination due to work by 2020	Benefit termination due to medical improvement by 2020	Difference
Age (years)	40.0	35.7	4.3***
Concurrent (%)	14.1	24.4	-10.3***
DAC (%)	7.4	10.0	-2.6***
DWB (%)	0.2	0.1	0.1***
Female (%)	47.8	47.6	0.2
Neoplasms (%)	4.5	10.7	-6.2***
Mental disorders (%)	35.2	42.5	-7.3***
Back or other musculoskeletal (%)	16.3	11.6	4.7***
Nervous System (%)	5.4	5.2	0.3
Circulatory System (%)	3.1	3.6	-0.5*
Genitourinary System (%)	4.0	5.9	-1.9***
Injuries (%)	5.0	6.2	-1.2**
Respiratory (%)	1.2	1.3	-0.1
Severe visual impairments (%)	2.3	0.9	1.5***
Digestive system impairments (%)	1.6	3.3	-1.7***
Other impairments (%)	21.3	8.8	12.5***
Monthly Benefit Amount (\$)	990	856	134**
Has representative payee (%)	12.2	13.2	-1.0
AIME in 2011 (\$)	1,668	1,340	328

Source: 2020 Disability Analysis File and BODS

Notes: Weights are used to ensure that the BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level. Unweighted sample sizes: Benefit termination due to work by 2020 = 21,319, benefit termination due to medical improvement by 2020 = 12,032.

### 3. Post-Exit Experiences of Beneficiaries who Exit for Work and Medical Improvement

We now consider the post-exit experiences of SSDI beneficiaries whose benefits are terminated due to work or medical improvement. Our analyses are similar to those presented by Anderson et al. (2022), but rather than looking only at time points 5-and 10-years post-exit, we trace outcomes annually. These analyses are also related to work by Hemmeter and Stegman (2013) and Hemmeter and Bailey (2016), which considered outcomes for beneficiaries whose benefits were terminated due to medical improvement.

In order to examine outcomes after exit, we restrict our sample to those Stage 1 control subjects who experience benefit termination due to work or medical improvement during the period 2011-2017. For this sample, we examine outcomes (benefits paid, mortality, earnings, and employment) in the

year of exit, the year following exit, and so on, through 2019 or 2020.<sup>2</sup> For those who exited in 2011, we observe outcomes through eight or nine years after exit, depending on whether the outcome is measured through 2019 or 2020. Because we observe fewer post-exit years for those who exited later, the sample size declines as we examine periods further from exit (**Exhibit 2**).

Exhibit 2. Sample Sizes for Post-Exit Outcomes, Stage 1 Control

Follow-up year for outcomes measured through:		Sample size for Stage 1 Control		
2019	2020	Exits from:	Exits for work	Exits for medical improvement
Y0-Y2	Y0-Y3	2011-2017	21,319	8,945
Y3	Y4	2011-2016	18,576	7,590
Y4	Y5	2011-2015	16,006	6,202
Y5	Y6	2011-2014	13,276	4,919
Y6	Y7	2011-2013	10,373	3,480
Y7	Y8	2011-2012	7,740	2,355
Y8	Y9	2011	4,710	942

Source: Disability Analysis File

Among the Stage 1 control group, beneficiaries whose benefits are terminated due to work between 2011 and 2017 are about 40 percent more likely to have SSDI benefits due at some point between exit and 2019 than are beneficiaries whose benefits are terminated due to medical improvement during the same period (35 percent compared to 25 percent, **Exhibit 3**). They also have SSDI benefits due in over twice as many of their observed post-exit years (26 percent of post-exit years observed compared with 12 percent). In general, having benefits due after the year of exit is indicative of returns to benefits. This is thus consistent with the findings of Anderson et al. (2022), who found substantially higher rates of re-entitlement for beneficiaries whose benefits were terminated due to work than for those whose benefits were terminated due to medical improvement. The higher overall rate of benefits due for beneficiaries whose benefits are terminated due to work in later years is likely influenced by SSA’s expedited reinstatement provision. Expedited reinstatement allows beneficiaries whose benefits are terminated due to work who are unable to perform SGA to request that their benefits be reinstated without a new application, provided that they request reinstatement within five years of exit (SSA, n.d.). Beneficiaries whose benefits were terminated due to medical improvement are much more likely to have benefits due in the year of termination, which reflects the different dynamics of benefit termination due to work – which occurs after benefit suspensions due to work – and benefit termination due to medical improvement – which is not necessarily preceded by any suspension in benefits.

Beneficiaries who exit for work also have higher total benefits due over the period from exit to 2019, and higher annual benefits due in each year from the year following exit to the end of the observation period.<sup>3</sup> Those who exit for work have lower benefits in the year of exit than do those who exit for medical improvement, for the same reason that they are less likely to have any benefits due. Differences in benefits due grow over time, likely reflecting the cumulative results of returns to benefits.

<sup>2</sup> Death is measured through 2020. All other outcomes are measured through 2019.

<sup>3</sup> Benefits paid exhibit a similar pattern.

Exhibit 3. Benefit Outcomes by Exit Type, BOND Stage 1 Control Subjects Whose Benefits were Terminated due to Work or Medical Improvement from 2011-2017

	Benefits terminated due to work, 2011-2017	Benefits terminated due to medical improvement, 2011-2017	Difference
Any SSDI benefits due, year after exit through 2019 (%)	35.1	25.4	9.7***
Percent of post-exit years with SSDI benefits due (%)	25.9	12.1	13.8***
Any SSDI benefits due during:			
year of exit (%)	27.1	72.0	-44.9***
year of exit + 1 (%)	16.4	18.8	-2.4**
year of exit + 2 (%)	23.1	7.5	15.7***
year of exit + 3 (%)	26.9	9.3	17.6***
year of exit + 4 (%)	29.3	10.8	18.6***
year of exit + 5 (%)	31.1	12.1	19***
year of exit + 6 (%)	33.4	13.3	20.1***
year of exit + 7 (%)	34.9	14.7	20.2***
year of exit + 8 (%)	36.9	14.7	22.2***
Total benefits due, year after exit through 2019 (\$)	17,577	5,087	12,489***
Average annual benefits due, year after exit through 2019 (\$)	3,203	972	2,230***
Annual SSDI benefits due:			
year of exit (\$)	1,569	5,436	-3,867***
year of exit + 1 (\$)	1,533	666	866***
year of exit + 2 (\$)	2,671	717	1,955***
year of exit + 3 (\$)	3,393	1,003	2,390***
year of exit + 4 (\$)	3,900	1,207	2,692***
year of exit + 5 (\$)	4,279	1,427	2,851***
year of exit + 6 (\$)	4,575	1,617	2,958***
year of exit + 7 (\$)	4,813	1,757	3,055***
year of exit + 8 (\$)	5,162	1,788	3,373***

Source: Disability Analysis File

Notes: Weights are used to ensure that the BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level. Sample sizes vary by length of follow-up. See Exhibit 2 for more detail on sample sizes.

Beneficiaries whose benefits are terminated due to medical improvement are about twice as likely to die in the year of exit and slightly more likely to do so in the year after exit (1.3 versus 0.7 percent, **Exhibit 4**). However, there is no statistically significant difference between the two groups in death in other years, or in cumulative mortality through 2020.

Exhibit 4. Mortality by Exit Type, BOND Stage 1 Control Subjects Whose Benefits were Terminated due to Work or Medical Improvement from 2011-2017

	Benefits terminated due to work, 2011-2017	Benefits terminated due to medical improvement, 2011-2017	Difference
Death, exit through 2020 (%)	5.78	5.54	0.24
Death:			
year of exit (%)	0.68	1.32	-0.64***
year of exit + 1 (%)	0.50	0.68	-0.18*
year of exit + 2 (%)	0.65	0.69	-0.05
year of exit + 3 (%)	0.71	0.77	-0.06
year of exit + 4 (%)	0.86	0.71	0.15
year of exit + 5 (%)	0.98	1.07	-0.09
year of exit + 6 (%)	0.91	0.80	0.11
year of exit + 7 (%)	1.17	1.32	-0.15
year of exit + 8 (%)	1.13	0.83	0.31*
year of exit + 9 (%)	1.44	1.17	0.27

Source: Disability Analysis File

Notes: Weights are used to ensure that the BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level. Sample sizes vary by length of follow-up. See Exhibit 2 for more detail on sample sizes.

Compared to beneficiaries whose benefits were terminated due to medical improvement, former beneficiaries whose benefits were terminated due to work had higher earnings in all post-exit years, and higher earnings on average from exit through 2019 (**Exhibit 5**). Differences between the two groups appear to decline over time, as average annual earnings decline slightly for those whose benefits were terminated due to work and increase for those whose benefits were terminated due to medical improvement. The year following exit, beneficiaries whose benefits were terminated due to work earned \$16,769 more than did those whose benefits were terminated due to medical improvement. But by eight years post-exit that difference had fallen to \$6,209.

Exhibit 5. Earnings by Exit Type, BOND Stage 1 Control Subjects Whose Benefits were Terminated due to Work or Medical Improvement from 2011-2017

	Benefits terminated due to work, 2011-2017	Benefits terminated due to medical improvement, 2011-2017	Difference
Total earnings, year after exit through 2019 (\$)	32,176	22,082	15,358***
Average annual earnings, year after exit through 2019 (\$)	26,802	14,425	14,678***
Annual earnings:			
year of exit (\$)	28,304	7,838	20,466***
year of exit + 1 (\$)	28,306	11,537	16,769***
year of exit + 2 (\$)	27,381	13,030	14,351***
year of exit + 3 (\$)	27,399	14,163	13,236***
year of exit + 4 (\$)	27,202	15,126	12,076***
year of exit + 5 (\$)	26,544	16,121	10,423***
year of exit + 6 (\$)	25,405	16,167	9,238***
year of exit + 7 (\$)	24,608	16,287	8,321***
year of exit + 8 (\$)	23,224	17,015	6,209***

Source: Master Earnings File, 2020 Disability Analysis File

Notes: Weights are used to ensure that the BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level. Sample sizes vary by length of follow-up. See Exhibit 2 for more detail on sample sizes.

Nearly all beneficiaries whose benefits were terminated due to work had earnings in the year of exit, which is perhaps not surprising, given that their employment is what triggered benefit termination (**Exhibit 6**). Employment rates remain above 75 percent through 5 years post-exit, which includes some whose benefits have been reinstated. Employment differences between beneficiaries whose benefits were terminated due to work and medical improvement are similar to those for average earnings – former beneficiaries whose benefits were terminated due to work are more likely to work and work at substantial levels in all periods observed. This is particularly notable because they are also more likely to have benefits re-instated, suggesting that beneficiaries whose benefits were terminated due to medical improvement are both less likely to have earnings and less likely to be receiving SSDI benefits. However, this difference diminishes over time. In the eighth year after the year of exit, 59 percent of former beneficiaries whose benefits had been terminated due to medical improvement had some earnings, and 41 percent were earning at least annualized SGA.

Exhibit 6. Any employment and employment above annualized SGA, BOND Stage 1 Control Subjects Whose Benefits were Terminated due to Work or Medical Improvement from 2011-2017

	Benefits terminated due to work, 2011-2017	Benefits terminated due to medical improvement, 2011-2017	Difference
Any work, year after exit through 2019 (%)	97.4	85.0	11.2***
Percent of years with any work, year after exit through 2019 (%)	86.4	61.6	25.9***
Any work:			
year of exit (%)	95.2	53.8	41.4***
year of exit + 1 (%)	91.2	61.6	29.6***
year of exit + 2 (%)	85.9	61.8	24.2***
year of exit + 3 (%)	81.7	62.5	19.1***
year of exit + 4 (%)	78.8	61.4	17.4***
year of exit + 5 (%)	75.6	61.3	14.3***
year of exit + 6 (%)	72.4	59.8	12.7***
year of exit + 7 (%)	69.6	59.4	10.2***
year of exit + 8 (%)	66.5	58.7	7.8***
Any years with earnings of annualized SGA or greater, year after exit through 2019 (%)	91.7	75.7	16.4***
Percent of years with earnings of annualized SGA or greater, year after exit through 2019 (%)	66.3	41.0	30.3***
Percent with earnings of annualized SGA or greater:			
year of exit (%)	75.6	22.2	53.4***
year of exit + 1 (%)	71.1	34.0	37.1***
year of exit + 2 (%)	65.2	37.8	27.4***
year of exit + 3 (%)	62.2	38.9	23.4***
year of exit + 4 (%)	59.7	40.3	19.4***
year of exit + 5 (%)	57.4	41.4	16.0***
year of exit + 6 (%)	54.5	40.9	13.1***
year of exit + 7 (%)	52.7	40.9	11.9***
year of exit + 8 (%)	50.0	41.3	8.7**

Source: Master Earnings File, 2020 Disability Analysis File

Notes: Weights are used to ensure that the BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level. Sample sizes vary by length of follow-up. See Exhibit 2 for more detail on sample sizes.

#### 4. Rates of Exit for Work and Medical Improvement

Next, we examine the percentage of BOND subjects who exited benefits for work, medical improvement, or either reason, in each year from 2011 through 2020. While the prior two sections used BOND data to comment on a nationally representative sample of beneficiaries subject to current-law rules, this and the following section focus on the effects of the BOND offset rules on exit behavior.

By the end of 2020, in Stage 1 3.7 percent of T1 subjects and 4.7 percent of C1 subjects had experienced benefit termination either for work or medical improvement, with most of the difference between the two groups coming from higher exits for work among the C1 subjects (**Exhibit 7**). Exits were higher in Stage 2, with 11.5 percent of T21, 10.9 percent of T22, and 12.8 percent of C2 exiting for either work or medical improvement between 2011 and 2020. Exits due to work account for most of the difference among the Stage 2 groups and between Stage 1 and Stage 2. It is important to note that random assignment occurred mid-year in 2011, and that exits due to work occur with a lag, such that a benefit termination due to work as of a given month will not be final, and thus recorded in the data, until a later date. Thus 2011 benefit terminations due to work among treatment subjects are to be expected, and reflect beneficiaries whose benefits were terminated effective before random assignment, but were not finalized until some time after random assignment.

The Stage 1 results highlight the fact that although small proportions of beneficiaries leave benefits due to work in any given year, the proportion of beneficiaries who experience benefit termination due to work over a multi-year period is non-trivial (Liu & Stapleton 2011). Benefit termination due to work is even more common among the Stage 2 sample, where more than 10 percent of the control group exited benefits due to work over the 2011-2020 period. Higher rates of exit in the Stage 2 sample demonstrate the fact that Stage 2 volunteers differ from the general population of beneficiaries in terms of their propensity to exit, particularly due to work. This suggests that the sample of beneficiaries who volunteered for Stage 2 – and who would volunteer for similar policies – have a substantial propensity to have benefits terminated due to work.

Within each Stage, the cumulative proportion of BOND subjects who have exited for medical improvement since random assignment is reasonably similar in each year (**Exhibit 8**). This is particularly true in Stage 1, where differences in cumulative exits for treatment and control are not statistically significant in years prior to 2018 and even the differences in later years that are statistically significant are small in magnitude. Cumulative exits for medical improvement vary more for Stage 2, but all groups experience similar trends.

The pattern in exits for work are very different for treatment and control groups, as would be expected, given that the alternative benefit rules available to the treatment groups prevented benefit termination due to earnings during the BPP. During the first several years after random assignment, almost no members of the BOND treatment groups exited benefits due to work. Beginning in 2016, when the first beneficiaries reached the end of the BPP cumulative exits for work increased sharply for the treatment groups. As of 2020, treatment subjects were still less likely to have exited due to work since 2011 than were members of the relevant Control group. This difference is consistent with the finding reported by Geyer and coauthors (2022) that treatment group members were more likely to be receiving SSDI benefits in 2019 than were control group members. As of 2019, 2 percent of Stage 1 treatment subjects and 7 percent of Stage 2 treatment subjects were still in their BPP, which prevented benefit termination due to work. As these BPPs end, it is likely that the differences between treatment and control in cumulative benefit terminations due to work will continue to decline. However, differences between treatment and control in the rates of new benefit terminations due to work are already very small by 2019. Thus, we do not find indications to suggest that differences in cumulative benefit terminations due to work will disappear completely. It may be that beneficiaries

who would have had benefits terminated for work experience benefit termination for another reason first, such as age or death. It could also be that some treatment subjects who would have experienced benefit termination due to work had they been in the control condition are less able to work, due to worsening health or other factors, by the time their BPP ends.

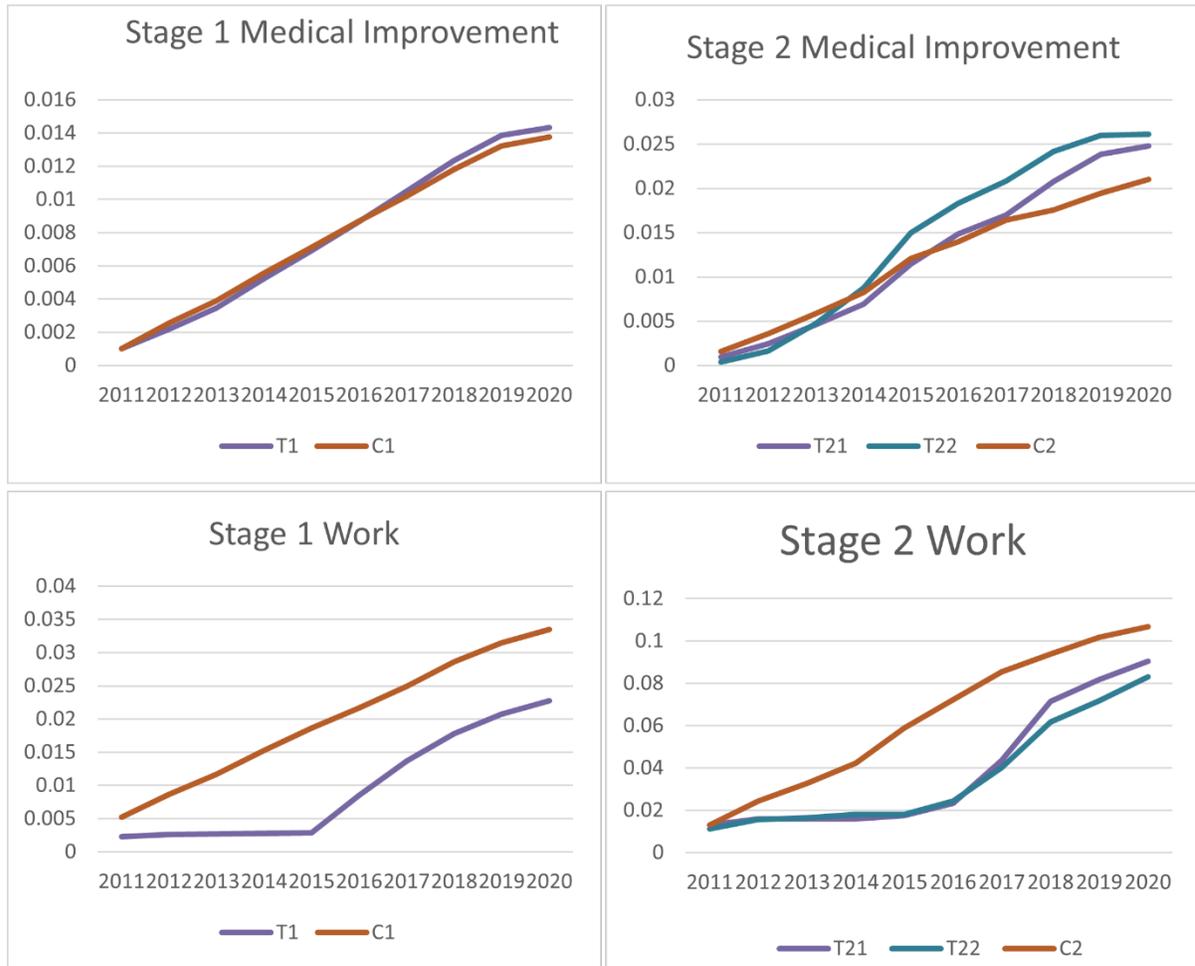
Exhibit 7. Exits from SSDI Due to Work and Medical Improvement by Year and Random Assignment Group

	Percent who exit in:										Percent Exited Through 2017	Percent Exited Through 2020
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Stage 1												
T1												
Work	0.23	0.03	0.01	0.01	0.01	0.56	0.53	0.41	0.29	0.20	1.37	2.28
Medical Improvement	0.10	0.12	0.13	0.18	0.17	0.17	0.18	0.19	0.15	0.05	1.05	1.43
C1												
Work	0.52	0.34	0.30	0.36	0.34	0.31	0.33	0.37	0.29	0.20	2.49	3.35
Medical Improvement	0.10	0.16	0.13	0.17	0.15	0.16	0.15	0.16	0.14	0.05	1.02	1.38
Stage 2												
T21												
Work	1.31	0.27	0.00	0.00	0.17	0.57	2.03	2.79	1.04	0.86	4.35	9.04
Medical Improvement	0.09	0.15	0.21	0.24	0.45	0.34	0.21	0.38	0.31	0.09	1.70	2.48
T22												
Work	1.11	0.45	0.08	0.15	0.00	0.63	1.59	2.15	1.01	1.13	4.02	8.31
Medical Improvement	0.04	0.13	0.30	0.40	0.63	0.33	0.25	0.34	0.18	0.02	2.08	2.61
C2												
Work	1.30	1.13	0.85	0.94	1.65	1.35	1.32	0.84	0.80	0.49	8.55	10.67
Medical Improvement	0.16	0.20	0.23	0.24	0.38	0.19	0.24	0.11	0.19	0.16	1.64	2.10

Source: 2020 Disability Analysis File

Notes: Weights are used to ensure that the Stage 1 BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment, and that Stage 2 BOND subjects who met analysis criteria are representative of the national population of SSDI-only beneficiaries who would volunteer for study enrollment. Unweighted sample sizes: T1 = 79,440, C1 = 891,429, T21 = 7,895, T22 = 4,854, C2 = 4849.

Exhibit 8. Cumulative proportion of BOND Subjects who have exited for work or medical improvement by year, 2011-2020



Source: 2020 Disability Analysis File

Notes: Weights are used to ensure that the Stage 1 BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment, and that Stage 2 BOND subjects who met analysis criteria are representative of the national population of SSDI-only beneficiaries who would volunteer for study enrollment.

Unweighted sample sizes: T1 = 79,440, C1 = 891,429, T21 = 7,895, T22 = 4,854, C2 = 4849.

## 5. Post-Exit Experiences of Former Beneficiaries Whose Benefits Were Terminated Due to Medical Improvement, by Treatment Status

In this section we explore the effect of random assignment to BOND treatment status on exits due to medical improvement. Unlike benefit termination due to work, treatment status did not directly affect benefit termination due to medical improvement. However, benefit termination due to medical improvement could potentially be affected by treatment status. For example, if work is therapeutic and improves health, any increase in work among treatment subjects could result in more medical improvement and thus more beneficiaries having benefits terminated due to medical improvement. It would also be possible that for some beneficiaries, earnings increase over time as they medically improve. These beneficiaries would, with enough time, eventually have benefits terminated for work or for medical improvement, depending on which threshold is met first. For these beneficiaries, the

protection from benefits termination due to work that the offset policy provided would make them more likely to experience benefit termination due to medical improvement.

Understanding the effect of treatment status on benefit termination due to medical improvement is interesting for two reasons. First, it offers insights into the indirect effects of the benefit offset policy on treatment subjects. Second, if we were to determine that there was no effect of treatment status on benefit termination due to medical improvement, we could consider comparisons of post-exit experiences for treatment and control subjects to be causal estimates of the effect of having been subject to the offset rules rather than current-law rules for a group of study subjects who are no longer subject to SSDI earnings rules. However, if assignment changed the composition of who exited for medical improvement, differences in post-exit experiences for treatment and control subjects would reflect both this difference in composition and any effect of the BOND offset rules.

Both potential mechanisms of affecting exits for medical improvement discussed here ([a] through improvements in health and [b] shifting some exits that would have been due to work to medical improvement exits) would have the effect of increasing exits for medical improvement for the treatment group. Thus, we can look for evidence of whether assignment affected benefit termination for medical improvement by examining the cumulative rate of such exits. If differences in rates of exit for medical improvement are statistically significant and favor the treatment group, this would be evidence that assignment affects the composition of medical improvement exiters. Through years prior to 2017, we do not find evidence that the offset policy had an effect on benefit termination due to medical improvement. (**Exhibit 9**). We also do not find a statistically significant difference in terminations through 2017. However, because absence of evidence is not evidence of absence, we also scrutinize the point estimate and consider the implications of an effect of that size on terminations due to medical improvement. Here, the point estimate would suggest that exits for medical improvement are about 0.03 percentage points, or 3 percent, more common among the treatment group. While a small difference, and not statistically significant, if the additional work exiters in the treatment group differ from the average work exiter in their propensity to work, we might expect to find differences in post-exit experiences.<sup>4</sup> Thus we focus on beneficiaries who exit by 2016, rather than 2017, for the rest of this analysis.

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<sup>4</sup> We are not concerned with the similar-sized differences in earlier years that favor the control group, because we are investigating the potential presence of mechanisms that would increase the number of treatment subjects whose benefits are terminated due medical improvement, but not vice-versa.

Exhibit 9. Effects of BOND Benefit Offset on Cumulative Percent of Beneficiaries who have experienced termination of Benefits due to Medical Improvement

	Treatment	Control	Difference
Exit by 2011 (%)	0.10	0.10	-0.00
Exit by 2012	0.22	0.26	-0.04
Exit by 2013	0.35	0.39	-0.04
Exit by 2014	0.52	0.56	-0.03
Exit by 2015	0.69	0.71	-0.02
Exit by 2016	0.87	0.87	-0.00
Exit by 2017	1.05	1.03	0.03

Source: DAF

Notes: Weights are used to ensure that the Stage 1 BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level.

Unweighted sample sizes: T1 = 79,440, C1 = 89,129.

Although the proportions in the treatment and control groups who exited due to medical improvement through 2016 are the same down to the hundredth of a percent, we cannot rule out the possibility that the offset policy somehow changed the composition of those who exited due to medical improvement. Therefore, we further investigate by examining balance on baseline characteristics between treatment and control subjects whose benefits were terminated due to medical improvement. We find statistically significant differences between treatment and control subjects whose benefits were terminated due to medical improvement on two of the characteristics examined. Control exiters are more likely to be disabled adult children and had lower earnings in 2010 (**Exhibit 10**).<sup>5</sup>

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<sup>5</sup> In considering equivalence at baseline, it is common to also compare the size of differences expressed as a proportion of the control group standard error. This protects against cases where differences exist but are not statistically significant due to small sample sizes. We considered whether differences between treatment and control subjects whose benefits were terminated due to medical improvement from 2011-2016 were larger than 0.05 standard deviations and found no such differences.

Exhibit 10. Comparison of treatment and control subjects with benefit termination due to medical improvement during 2011-2016, BOND C1

	Treatment	Control	Difference
Age (years)	36.8	36.1	0.7
Concurrent (%)	20.7	22.4	-1.7
DAC (%)	7.3	9.8	-2.5**
DWB (%)	0.2	0.1	0.1
Female (%)	44.1	47.0	-2.9
Neoplasms (%)	14.9	14.4	0.5
Mental disorders (%)	37.1	38.9	-1.8
Back or other musculoskeletal (%)	12.0	11.1	0.9
Nervous System (%)	4.2	4.8	-0.6
Circulatory System (%)	3.9	4.2	-0.3
Genitourinary System (%)	7.0	6.3	0.7
Injuries (%)	6.9	7.3	-0.4
Respiratory (%)	1.0	1.3	-0.4
Severe visual impairments (%)	0.7	0.7	0
Digestive system impairments (%)	4.5	3.8	0.7
Other impairments (%)	7.8	7.1	0.7
Monthly Benefit Amount (\$)	897.4	882.8	14.5
Has representative payee (%)	12.3	11.9	0.4
Short Duration on SSDI (%)	42.5	41.8	0.8
AIME in 2011 (\$)	1442.7	1417.6	25.1
Employed in 2010	31.8	28.6	3.2
Earnings in 2010 (\$)	3,316	2,477	838**
Earnings above annualized SGA in 2010	25.4	22.8	2.6

Source: Master Earnings File, 2020 Disability Analysis File

Notes: Weights are used to ensure that the BOND subjects who met analysis criteria are representative of the national beneficiary population in the month of random assignment. \* denotes differences that are significantly different from zero at the 0.10 level, \*\* those that are significant at the 0.05 level, and \*\*\* those that are significant at the 0.01 level.

Unweighted sample sizes: Treatment = 800, Control=7,590.

These differences in 2010 earnings suggest that being randomly assigned to the BOND offset rules did change the composition of beneficiaries whose benefits were terminated due to medical improvement. This shift means that we are unable to use the experimental design of the BOND evaluation to assess the causal impacts of the offset policy on post-exit earnings. However, the shift itself provides insights on the causal impacts of the offset policy. Specifically, it substantiates one of the reasons why benefit termination due to work may remain lower among treatment subjects – some of those who might have exited due to work instead exited due to medical improvement.

## 6. Summary

This memo explored exits and post-exit experiences for BOND subjects whose benefits were terminated due to work or medical improvement.

We find that beneficiaries whose benefits were terminated due to work differ from those whose benefits were terminated due to medical improvement in many ways. When we examine post-exit experiences, we find many differences between former beneficiaries whose benefits are terminated due to work when compared with those whose benefits are terminated due to medical improvement. However, many of those gaps lessen over time, as more former beneficiaries who exited due to medical improvement are employed, as are fewer of those who exited due to work. This is consistent with the findings of Anderson et al. (2022) and leads us to echo the suggestion made by Anderson et al. (2022) that SSA consider expanding the target population for the Beyond Benefits Study to examine beneficiaries who exit due to work or undertaking additional research to understand their needs.

We also find that similar proportions of T1 and C1 subjects had their benefits terminated due to medical improvement, as did T21, T22, and C2. Terminations for work were much more prevalent among Stage 2 subjects, as might be expected given that Stage 2 participants were informed and recruited volunteers. The Stage 2 outreach and recruitment was intended to produce a select sample of SSDI beneficiaries, distinct from the national SSDI caseload in their likelihood to use the benefit offset. Differences in the 2011 employment rates confirm that the Stage 2 sample is indeed distinct from the Stage 1 sample. Altogether, 36 percent of Stage 2 control subjects were working in 2011, compared with 14 percent of Stage 1 control subjects (Gubits et al. 2018). We also find that, although compared to controls, treatment subjects had higher rates of benefit termination due to work as the BPP ended, *cumulative* exits for work were still lower for treatment group members as of 2020. Some treatment subjects had already had benefits terminated due to medical improvement, attained full retirement age, or died, before they could have had benefits terminated due to work. However, results from Geyer et al. (2022) show that treatment subjects were more likely to be receiving a SSDI benefit as of 2019 than were control subjects. Some of these treatment subjects were still within their BPP at that time, but the low rates of catch up in recent years suggest that differences in cumulative benefit termination due to work will continue to exist. It may be that some treatment subjects experienced worsening health between the beginning and end of their BPP, so were less able to work and earn above SGA by the time their BPP had ended.

Finally, we find evidence that access to the BOND benefit offset rules changed the composition of who experienced benefit termination due to medical improvement. Specifically, treatment subjects with these exits had higher pre-randomization earnings, and were more likely to earn more than annualized SGA in 2010. These are likely beneficiaries who were simultaneously recovering medically and in terms of their ability to work and would have had their benefits terminated due to work were they in the control condition. This shift is small in magnitude – too small to detect when examining the rate of benefit termination for medical improvement – but is evident in the average characteristics of exiters.

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