CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

WORK OVERPAYMENTS AMONG NEW SOCIAL SECURITY DISABILITY INSURANCE BENEFICIARIES

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Abstract

This paper studies the experiences of the 2008 cohort of first-time Social Security Disability Insurance beneficiaries who were at risk of overpayment because they engaged in substantial gainful activity (SGA) after completing the trial work period and grace period (work incentives allowing beneficiaries to test work). It uses data from the December 2020 Disabled Beneficiaries and Dependents extract from the Social Security Administration's Master Beneficiary Record to describe overpayment rates, amounts, and temporal characteristics of overpayments. Drawing on the 2019 Disability Analysis File and Master Earnings File, it also documents the sequence of program milestones overpaid beneficiaries experienced and compares the experiences of overpaid beneficiaries with those whose benefits were concurrently suspended or terminated for work and not overpaid. This analysis focuses on the first occurrence of program milestones. Understanding beneficiary pathways to overpayments might help policymakers design policies that minimize overpayments or, if they occur, help beneficiaries maintain their connection to employment.

The paper found the following:

- Among a sample of 31,520 2008 first-time Social Security Disability Insurance awardees at risk of a work-related overpayment, 82 percent (25,846) were overpaid in the first 10 years after award.
- Among those overpaid within 10 years of award, half of all overpayments began in the first four years after award.
- Nearly all overpayments (89 percent) began in the first month of SGA after exhausting trial work period and grace period months.
- Most overpaid beneficiaries (79 percent) followed a direct route to overpayment, experiencing award, earnings, trial work period completion, and then engaging in SGA (after the grace period). About 16 percent received employment network or vocational rehabilitation services before their first month of post–grace period SGA.
- Overpaid beneficiaries are 7.5 percentage points less likely to experience work termination in the first 10 years after Social Security Disability Insurance award compared with at-risk beneficiaries who are not overpaid.

The policy implications of the findings are:

- Earnings reporting reminders sent in the four years after award could help encourage reporting and reduce the likelihood or amount of overpayment.
- Engaging employment network or vocational rehabilitation providers in issuing earning reporting reminders or directly assisting with earnings reporting to SSA could help avoid overpayments.
- Because overpaid beneficiaries experience lower rates of work termination relative to at-risk beneficiaries who are not overpaid, supports to overpaid beneficiaries might help them maintain employment at higher rates.

Introduction

Social Security Disability Insurance (DI) is an important safety net for people with disabilities who meet the program eligibility rules. In 2019, almost 10 million people received DI benefits, and the average monthly benefit was $1,258 (Social Security Administration 2020a). For more than 80 percent of beneficiaries, DI benefits account for more than half of their income (Bailey & Hemmeter, 2015). Yet even with DI support, about 20 percent live in poverty (Messel & Trenkamp, 2022). Earned income could help these beneficiaries maintain their connection to the labor force and improve their financial stability.

Work-related overpayments occur when the Social Security Administration (SSA), which administers the DI program, issues a monthly DI benefit to which the individual is not entitled because SSA determined that the person engaged in substantial gainful activity (SGA). SGA is measured by earnings above a monthly threshold set annually. In 2022, the SGA level is $1,350 per month for non-blind applicants and $2,260 per month for blind applicants. The DI eligibility criteria require a medical impairment that prevents a person from engaging in SGA. After applying program rules that allow beneficiaries to test their ability to work, beneficiaries are generally not entitled to a payment in months in which they have earnings above the SGA threshold. Even so, SSA often issues a payment for months in which benefits should have been withheld for work. This could occur if beneficiaries fail to report earnings timely to SSA or because of SSA processing delays. Although there are other types of overpayments to DI beneficiaries, this manuscript focuses on work-related overpayments and refers to these as overpayments for brevity.

When DI beneficiaries engage in SGA, they run the risk of being overpaid. Among beneficiaries who engaged in SGA after using available work incentives and were at risk of a work-related overpayment, 71 percent were overpaid in a three-year period, with a median overpayment amount of more than $9,000 (Hoffman et al., 2019). Beneficiaries can appeal overpayments, but if the appeal is unsuccessful, they are required to repay the overpayment debt. SSA-funded resources are available to help beneficiaries navigate overpayments, including the Work Incentives Assistance Program, which provides benefits counseling, and Protection and Advocacy for Beneficiaries of Social Security, which provides legal support, advocacy, and information to help beneficiaries resolve employment-related issues.

Overpayments can cause financial and other challenges for overpaid DI beneficiaries and SSA. Repaying overpayments can create economic hardship and stress for beneficiaries (O'Day et al., 2016, Hoffman et al., 2017). Overpayments can also cause a decline in the proportion of beneficiaries who continue to work and earn above the SGA threshold (Hoffman et al., 2020). In addition, overpayments create fiscal and administrative challenges for SSA. Of all overpayment debt SSA identified in 2004, nearly half was waived, cancelled, or outstanding 10 years later (SSA, 2015). SSA considers minimizing overpayments a program integrity goal (SSA, 2020a).

Despite the adverse implications of overpayments to DI beneficiaries and SSA, little is known about the program and service milestones leading up to overpayment. Previous literature tracked work-related milestones and longitudinal work outcomes for the broader population of beneficiaries without distinguishing overpaid beneficiaries from correctly paid beneficiaries. Hennessey & Muller (1994) used survey data developed by SSA to document return to work, use of vocational rehabilitation (VR), and use of SSA work incentives over a 10-year period among DI awardees in 1982. More recently, several papers documented work milestones in a 5- or 10-year period among DI awardee cohorts ranging from 1996 to 2004 (Liu & Stapleton, 2011; Ben-Shalom & Mamun, 2015; Anand & Ben-Shalom, 2018). These papers found that, within 10 years of award, more than 4 percent of recent awardee cohorts engaged in SGA after using available work incentives; these workers are at risk of work-related overpayments.

In this paper, we build on past research of work-related milestones to document beneficiaries' experiences preceding and related to overpayments among those who first received a new DI award in 2008. We document temporal aspects of overpayments, including the time between DI award and first overpayment, duration of overpayment, and number of overpayment spells. We also describe the attainment and timing of work-related milestones that occur before overpayment, including employment service receipt, any earnings, completion of the trial work period (TWP), and suspension of benefits because of work, and we compare overpaid and correctly paid beneficiaries. Finally, we show the most prevalent set of pathways overpaid beneficiaries experience and describe the characteristics of overpaid beneficiaries who completed the most common paths.

Background

To qualify for DI, a person must have a medically determinable impairment that has lasted or is expected to last for at least 12 months or result in death and be unable to engage in SGA (SSA, 2021). Disabled worker beneficiaries, who account for 86 percent of all disabled DI beneficiaries (SSA, 2020b), must also have a sufficient work history. Some children, widows, and widowers of SSA beneficiaries qualify for benefits based on their own medical impairment even if they have limited or no work experience. Although these beneficiaries qualify under another SSA program, we follow common practice and refer to this group as DI beneficiaries.

DI award conveys both cash benefits and health insurance coverage, both after waiting periods. There is generally a five-month wait between disability onset and the date DI payment can begin. After a 24-month period of DI entitlement, beneficiaries are eligible for Medicare coverage. Because the process for adjudicating DI applications can be complex and beneficiaries may appeal their decision, at the time of award, some beneficiaries are eligible for both cash benefits (including retroactive payments) and Medicare. For all DI beneficiaries, ongoing cash benefit receipt depends on an inability to engage in SGA. DI eligibility continues until a beneficiary has their benefit terminated for SGA or medical improvement, dies, or transitions to the Social Security retirement program.

Although inability to engage in SGA is an eligibility criterion for DI, many DI beneficiaries have work goals, and some are employed. A recent study found that 45 percent of DI beneficiaries were work-oriented and considered employment a personal goal or a near-term expectation (Livermore et al., 2020). Among beneficiaries awarded DI from 1996 to 2006, 28 percent returned to work, earning more than $1,000 in at least 1 of 10 years after award (Liu & Stapleton, 2011). Among 2001 DI awardees, 4 percent engaged in SGA—after using other work incentives—for at least one month in the 10 years after award (Anand & Ben-Shalom, 2018).

The DI program offers supports to help beneficiaries achieve work-related goals through a program called Ticket to Work. Ticket to Work allows DI beneficiaries to receive services from two types of organizations, and SSA pays those organizations if a beneficiary achieves certain employment outcomes (or VR agencies may provide services under cost reimbursement). First, DI beneficiaries can receive employment services through state VR agencies available in every state. VR provides customized services in line with an individual's employment goals, interests, and abilities. Services can include career counseling, work-based learning experiences,

financial support for vocational training and postsecondary education, rehabilitation technology, transportation, and other services and supports (U.S. Department of Education, 2020). In addition, employment networks (ENs) can help beneficiaries with work-related goals. ENs can be an individual or organization that provides or coordinates employment-related services.

In addition, SSA work incentives allow beneficiaries to test work while in the DI program. During the TWP, DI beneficiaries can work and earn at any level with no change to their DI benefits. The TWP consists of 9 months (which do not need to be consecutive) in which earnings exceed an annually adjusted monthly threshold ($940 in 2021) in a 60-month rolling window. The extended period of eligibility comes after the TWP and lasts at least 36 consecutive months. During the first 36 months of this period, beneficiaries are ineligible for DI benefits in any month in which they engage in SGA except for a grace period comprising the first month of SGA and the following two months. After the grace period, SSA should suspend benefits for months in which the beneficiary engages in SGA. We refer to SGA after the grace period as meeting the criteria for suspension because of work. Beneficiaries are eligible for benefits in months in which earnings are below the SGA threshold during the first 36 months of the extended period of eligibility. Starting with the 37th month, DI benefits terminate immediately or, if available, after the grace period if the beneficiary engages in SGA (the termination phase). We refer to SGA after the 37th month and after the grace period as meeting the criteria for termination because of work. A summary of employment supports for SSDI beneficiaries is available in the SSA Red Book (SSA, 2020c).

Overpayments are possible after beneficiaries complete the TWP and grace period (when they meet the criteria for suspension or termination because of work). During the extended period of eligibility, work-related overpayments can occur when a beneficiary engages in SGA and meets the conditions for which benefits should be suspended according to program rules. If SSA does not revise the beneficiary's records to change their eligibility status and issues a benefit payment, the beneficiary is overpaid. Similarly, overpayments can accrue from the month that benefit eligibility terminates through the month in which SSA takes corrective administrative action to discontinue benefit payments.

Overpayments generally occur for two reasons. First, some beneficiaries do not report earnings in a timely manner and, for those beneficiaries, SSA must wait to receive earnings

information from other sources.[1] In 2012, an estimated 65 percent of work-related overpayment dollars occurred because of beneficiary reporting failures (SSA, 2018). Second, SSA might be delayed in processing earnings information. Earnings processing involves confirming alleged work incentives, verifying wages, gathering additional evidence as needed, and applying the complex rules to individual cases. Overpayments may continue to accrue during both beneficiary reporting and SSA processing delays.

Data and Methods

Here, we describe the data sources and sample selection criteria used in this analysis. We then describe how we identified beneficiaries at risk of overpayments and those overpaid. Finally, we describe our approach to identifying program milestones and pathways.

Data

For this analysis, we used the 2019 version of the Disability Analysis File (DAF) Restricted Access File, which combines data from multiple SSA administrative data sources and is SSA's largest longitudinal database of DI beneficiaries.[2] We identified the cohort of beneficiaries who were first awarded DI benefits in 2008. As described below, we focus on beneficiaries awarded benefits in 2008, meaning that beneficiaries first received DI benefits and first engaged with the DI program in 2008. Because the data are longitudinal, we can follow the milestones that the 2008 award cohort achieved over a 10-year period. The DAF contains comprehensive information on beneficiary characteristics, monthly earnings, and the program milestones we study, including TWP completion, use of EN or VR services, benefit suspension because of work, work and medical terminations, reaching full retirement age, and death.

To identify overpayments, we use data from the December 2020 Disabled Beneficiaries and Dependents (DBAD) file, which is a monthly extract of the Master Beneficiary Record (MBR), the primary repository of data used to administer the DI program. When SSA learns of beneficiary work activity, agency staff update the MBR to reflect the revised status. Each MBR

[1] DI beneficiaries are expected to report earnings right away when they start or stop work or experience a change in their work or earnings (SSA, 2021b). For beneficiaries who have not yet used the grace period, the three grace-period months could allow for timely benefit adjustment and proper payment.
[2] Documentation for the DAF Restricted Access File is available here: https://www.ssa.gov/disabilityresearch/daf.html.

update supersedes previous iterations and the DBAD preserves concurrent monthly snapshots of the MBR, elements of which may otherwise be overwritten. The DBAD's preservation of historical records allows us to identify overpayments by comparing what the beneficiary experienced at the time they worked with what should have happened.

We supplemented the DAF and DBAD data with information from the Master Earnings File (MEF). The MEF contains annual earnings data derived from IRS Form W-2 and tax submissions for self-employed workers. The DAF also includes monthly earnings information derived from SSA's Disability Control File. The Disability Control File, however, only includes earnings identified through formal SSA work reviews (known as work continuing disability reviews) and is not as comprehensive a source of earnings data as the MEF.

Analysis Sample

We began by identifying the cohort of beneficiaries first awarded DI benefits in 2008 (also referred to as 2008 DI awardees). Our analysis centered on the DI award date, the date SSA first sent a payment to the beneficiary, following previous literature tracking work-related milestones (Liu & Stapleton, 2011; Ben-Shalom & Mamun, 2015; Anand & Ben-Shalom, 2018). We focused on the award date (the date a beneficiary is notified that their application was approved and receive their first payment) rather than the entitlement date (the date a beneficiary first met the eligibility criteria for DI, which might occur before award) because beneficiaries have not engaged with the program until they are notified of award and received their first payment.

We imposed additional selection criteria to the sample of 830,271 beneficiaries awarded DI benefits in 2008 (Table 1). We dropped beneficiaries who were enrolled in a benefit offset demonstration that changes the benefit payment formula (namely the Benefit Offset National Demonstration, or BOND) during the analysis period (n = 780); did not merge to the December 2020 DBAD file or for whom the DBAD did not record information for the full analysis period from the DBAD (n = 909);[3] or were missing key analysis variables (n = 768).[4] We retained

[3] We dropped records that merged to the DBAD but for which the most recent updates (captured by "effective date") occurred after the start of our analysis period in 2008. This would occur if SSA processed 35 or more actions after award, overriding information about award and any other actions that occurred before the most recent 35 actions.
[4] We dropped beneficiaries who had benefits suspended or terminated for work (concurrently or retroactively) according to the December 2020 DBAD and for whom both the suspension and termination date were unavailable in the DAF or were missing earnings information from both the DAF and MEF.

beneficiaries regardless of age at award because overpayments can occur among DI beneficiaries nearing the retirement age, and a notable portion of our analysis sample (38 percent) reached full retirement age within our 10-year analysis period. As a sensitivity check, we produced some statistics excluding those who reached full retirement age within 10 years of award.

Next, we identified beneficiaries at risk of overpayments (that is, those who met the criteria for suspension or termination because of work) and those overpaid using an algorithm originally developed and used in the evaluation of BOND (Hoffman et al., 2017). The same algorithm has since been used to produce overpayment statistics for beneficiaries subject to current DI law outside of the BOND evaluation (Hoffman et al., 2019). Specifically, we identified months in which beneficiaries were at risk of a work-related overpayment. A beneficiary is at risk of overpayment in any month after the TWP and grace period in which they engaged in SGA. Over the 10-year analysis period, 31,520 beneficiaries engaged in SGA after the grace period and were at risk of an overpayment; this is our final analysis sample.

Table 1. *Sample Selection*

	Number dropped	Remaining sample
2008 DI awardees	--	830,271
Enrolled in benefit offset demonstration	780	829,491
Did not merge to DBAD or missing information for analysis period	909	828,582
Missing key analysis variables	768	827,814
Final analysis sample: No SGA after the TWP and grace period (not at risk of an overpayment)	796,294	31,520

Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR.

Finally, among months after the grace period in which beneficiaries engaged in SGA, we identified overpayments in months for which SSA paid benefits (and later retroactively suspended or terminated benefits).[5] We identified 25,846 beneficiaries (about 3.2 percent of the

[5] It is possible that beneficiaries engaged in SGA after the TWP and grace period and SSA paid beneficiaries for those months, but SSA had not identified those benefits as having been overpaid. Indeed, in a recent report, auditors identified 97 beneficiaries with earnings above SGA after the TWP and grace period, 77 of whom SSA identified as having been overpaid for work, and 1 person whom SSA had not identified as overpaid, but the auditors determined they should not have received benefits (SSA 2018). Such beneficiaries are not classified as having been overpaid in this analysis.

award cohort) with overpayments in the 10-year period following award. The algorithm detects the overwhelming majority of overpayments, but does not include all overpayments. For example, if SSA was withholding monthly benefits to repay a prior overpayment debt, a beneficiary who engaged in SGA could accrue additional overpayment debt in such a month that our algorithm would not capture. However, SSA case reviews suggest close alignment with our algorithm in aggregate (Hoffman et al., 2019).

We produced descriptive statistics on the overpayment rate, amount, timing, and duration. We report the nominal dollar amount of the overpayment because SSA reports, tracks, and collects overpayments in nominal dollars. That is, if SSA overpaid a beneficiary $1,000 in 2010, in future years, the overpayment debt will be $1,000 minus any amount repaid and is not adjusted for inflation.

Identifying Program Milestones and Pathways

We used administrative data to document program milestones that occur along the pathway to overpayment. Two milestones must have occurred within our sample of beneficiaries who were at risk of an overpayment: positive earnings and TWP completion. When needed, we imputed milestone dates. We identified the first instance of positive earnings after award using monthly earnings information from the DAF when available. If the MEF reported positive earnings in a particular year and the DAF did not, we used earnings information from the MEF and imputed the earnings date (because the MEF records annual earnings). To impute the date of first earnings, we first assigned the midpoint of the calendar year (in 2008, the midpoint between award and December 2008, and June for all years thereafter) as the first month of earnings for the year reported in the MEF. Second, if a beneficiary received EN or VR services in the same calendar year as first earnings reported in the MEF only, we revised the earnings imputation to occur at the end of the first month of employment service receipt. Third, we observed some cases with first earnings after the TWP completion date, which is illogical because earnings must occur before TWP completion. In such cases, we imputed the first earnings date to occur nine months before the TWP completion date. In total, 14.6 percent of our sample had an imputed value for the first month of positive earnings: 8.6 percent received the first imputation, 0.3

percent received the second, and 5.7 percent received the third.[6] In addition, some observations in our analysis sample did not have a TWP completion date. For these beneficiaries (0.9 percent of the sample), we imputed a TWP completion month, set as the month before the suspension date (including those with retroactive suspension dates).

We used the DAF to identify remaining milestones occurring within the 10-year period after award, including use of employment services, suspension or termination because of work, medical terminations, retirement, or death. We define suspension and termination dates as the dates in which beneficiaries met the programmatic criteria for benefit suspension or termination because of work, even if the determination was made retrospectively. Following recent literature, we used data derived from the SSA Waterfall file to identify medical terminations (Hemmeter & Bailey 2016).[7] This file includes information on full medical reviews (the process by which SSA determines medical terminations) reviewed by the state Disability Determination Service and was newly added to the 2019 DAF.

We produced statistics on the prevalence of each milestone and time from award to milestone among overpaid beneficiaries and compared these outcomes with those of beneficiaries at risk of an overpayment who were not overpaid. We then created a visual depiction of the milestone paths of overpaid beneficiaries to provide more detail about the sequencing of milestones. For the visual pathways depiction, we documented the *first* occurrence of work- and program-related milestones. We followed beneficiaries from award until work termination or program exit for a non-work reason (medical termination, retirement, or death). We excluded 5.8 percent of overpaid beneficiaries from the visual pathways depiction for whom a first milestone occurred before award (but after eligibility). We also excluded 3.8 percent of beneficiaries in our sample from the visual depiction with pathways that represented an impossible sequence of events. This comprised of 2.6 percent with program milestones in an illogical order such as having a termination for work that preceded the first suspension for work date and 1.2 percent with a first month of overpayment that occurs before a first suspension or

[6] The overall rate of earnings imputations was similar among those overpaid (14.7 percent) and not overpaid (14.3 percent). The first earnings imputation relying only on MEF earnings, however, was more prevalent among those not overpaid (12.2 percent versus 7.9 percent), and the reverse was true for the third imputation for first earnings occurring after TWP completion (1.9 percent versus 6.6 percent).

[7] Using the Waterfall file, we defined the date of medical termination based on the corresponding date for the CDR final action type (for example, date of the initial decision, the decision at the reconsideration level, decision at the admin law judge level, or the decision at the appeals council level).

termination for work.[8] Finally, we described the characteristics of overpaid beneficiaries who follow the most frequent milestone paths to understand the characteristics of beneficiaries who are represented in certain pathways.

Results

Overpayment Characteristics During the 10 Years After DI Award

A relatively small portion of beneficiaries awarded DI benefits in 2008 in our sample engaged in SGA after the grace period and were at risk of an overpayment: less than 4 percent. Among that group, 82 percent were overpaid within 10 years of DI award (Table 2, first column). Nearly all first overpayment spells (98.7 percent) began when beneficiaries met the criteria for suspension because of work (with the remainder, 1.3 percent, beginning when they met the criteria for termination because of work). Most overpayments (89.0 percent) occurred during their first month beneficiaries met the criteria for benefit suspension because of work; some beneficiaries (11.0 percent) were correctly paid for their first SGA month after the grace period and overpaid for a later SGA month.[9] The first month of overpayment occurred a median of 49 months after award.

There was notable variation in the time to first overpayment, with 7 to 16 percent experiencing their first overpayment in each of the first 10 years after award (Figure 1). Half of all overpayments observed in our 10-year analysis period occurred in the first four years after award. Overpayments were most prevalent in the second and third years after award, when 16.2 and 12.4 percent of overpayments observed in our sample occurred. Thereafter, overpayments were generally less common in each subsequent year. Notably, it is possible for beneficiaries to be overpaid in the first year after award (the first year in which a beneficiary received a DI benefit payment) if there was a gap between DI entitlement and DI award; beneficiaries can use TWP months as soon as they are entitled and might have completed some or all their TWP months upon award.

[8] We also excluded 0.1 percent of beneficiaries who experienced program exit because of a non-work reason, such as medical termination, before their first suspension. It is possible that these beneficiaries were re-awarded benefits and then experienced a work suspension or termination.

[9] On average, overpaid beneficiaries had 1.8 spells in which they met the criteria for suspension or termination for work relative to 1.1 spells among those who met the suspension or termination criteria and were not overpaid. Beneficiaries can have multiple spells in which they meet the criteria for suspension or termination if they engage in SGA, reduce earnings below the SGA threshold, and then engage in SGA once again (this example depicted two spells).

Beneficiaries in our analysis sample were overpaid for a median of nine months, with durations ranging from just one month to more than four years. For some, these months were spread across multiple spells of overpayment: 39 percent experienced more than one overpayment spell. The median length of a first or only overpayment spell was five months and, among those with multiple spells, there was a median of four months between overpayment spells. The median overpayment amount was $9,206 and, because some beneficiaries had very high overpayment amounts, the average overpayment amount was even higher: $13,556.

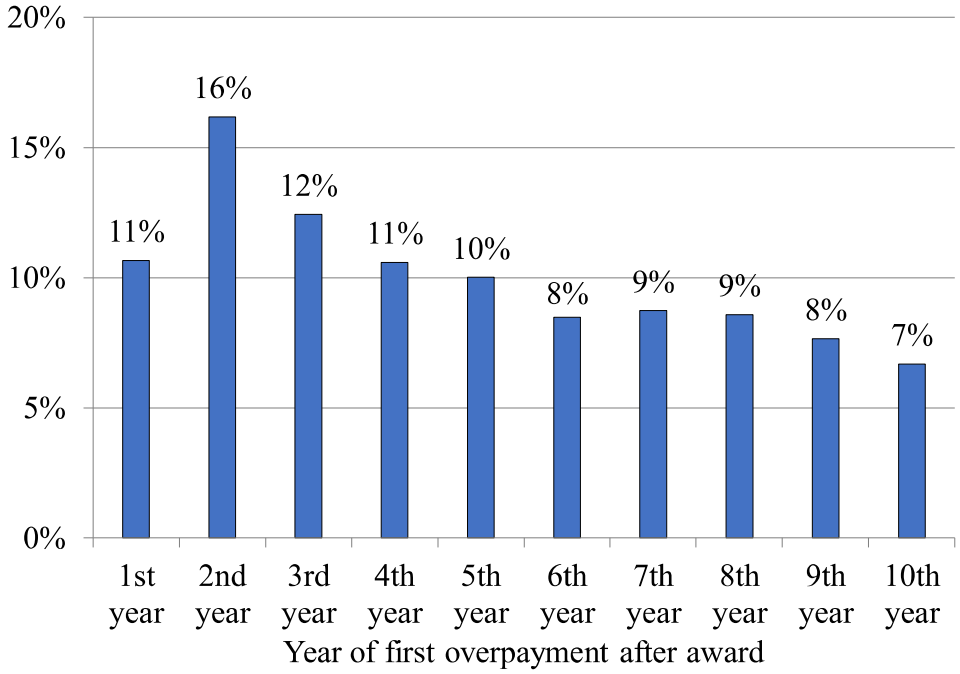
The overpayment experiences of the sample excluding beneficiaries who reached full retirement age within 10 years of award were broadly similar to those of the entire cohort of beneficiaries awarded DI benefits in 2008 (Table 2, second column). The most notable difference is the relatively higher rate of engagement in SGA after the grace period: 5.5 percent were at risk of an overpayment relative to 3.8 percent among the full sample. Among those at risk, the overpayment rates, duration of overpayment, and overpayment amounts were similar for the full analysis sample and the non-retirement sample. Here, we present results for the full analysis sample.

Table 2. *Rate, Duration, and Amount of Overpayment*

	2008 DI awardees	2008 DI awardees, excluding those who reached full retirement age in analysis period
Number of beneficiaries	827,814	516,307
Beneficiaries at risk of overpayment (n)	31,520	28,164
At risk, among 2008 awardees (%)	3.8	5.5
Beneficiaries overpaid (n)	25,846	23,274
Overpaid, among 2008 awardees (%)	3.1	4.5
Overpaid, among those at risk (%)	82.0	82.6
Among overpaid beneficiaries		
First overpaid when met criteria for suspension because of work (%)	98.7	98.6
Overpaid in first month of SGA after grace period (%)	89.0	88.8
Duration of overpayment (months)		
Average	12.2	12.5
1st percentile	1	1
25th percentile	4	4
50th percentile	9	9
75th percentile	17	18
99th percentile	49	49
Time to first overpayment spell (months)		
Average	53.2	55.2
50th percentile	49	52
Multiple overpayment spells (%)	38.8	39.2
Duration of first overpayment spell (months)		
Average	7.8	7.9
50th percentile	5	5
Duration between overpayment spells (months)		
Average	8.7	9.0
50th percentile	4	4
Overpayment amount ($)		
Average	13,556	13,614
1st percentile	660	660
25th percentile	3,934	3,943
50th percentile	9,206	9,258
75th percentile	18,337	18,486
99th percentile	64,205	64,428

Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR.

Figure 1. *Year of First Overpayment After Award*



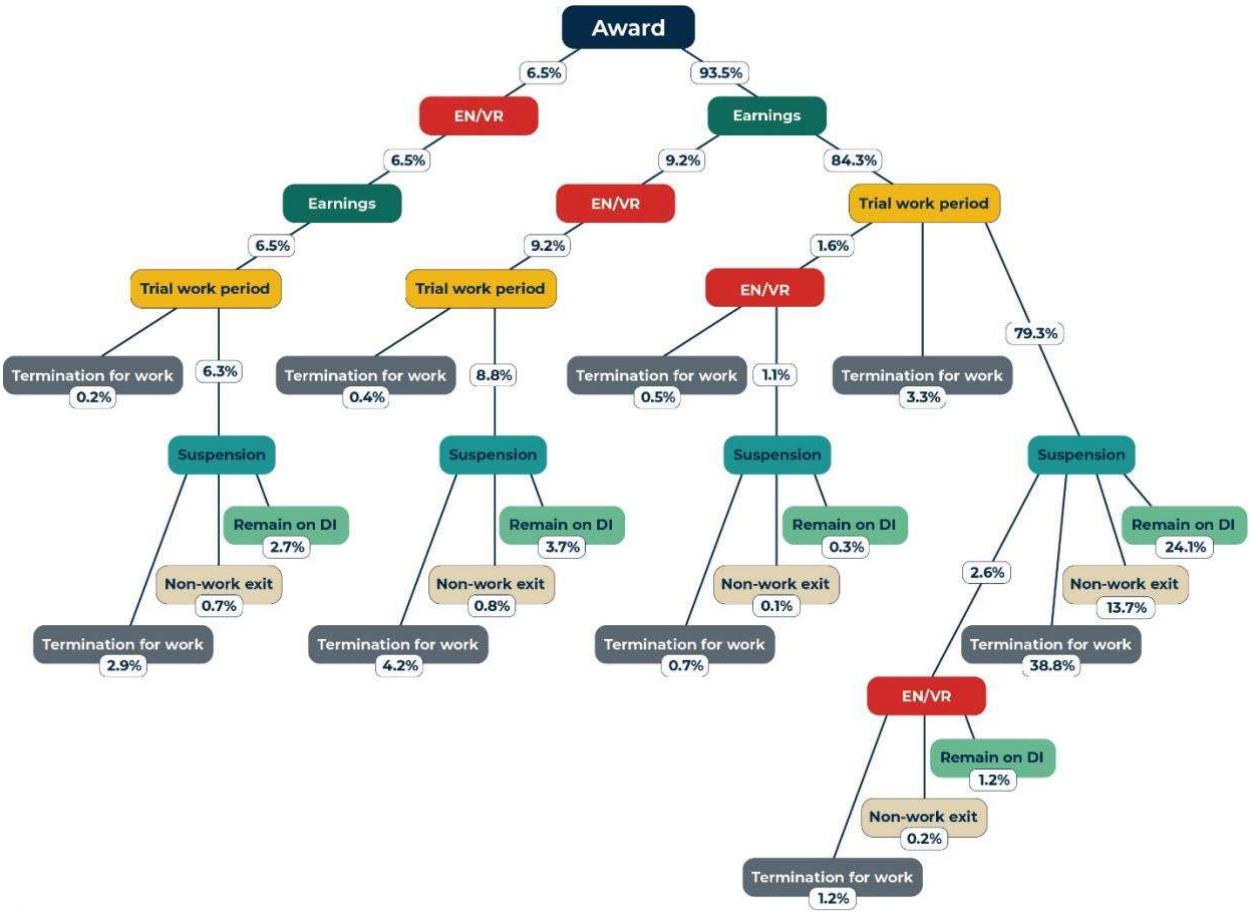
Note: Sample size = 25,846 overpaid beneficiaries.
Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR.

Overpayment Pathways

Figure 2 presents the sequencing of program milestones overpaid beneficiaries experienced. We include the first observance of each milestone. For example, although most beneficiaries engaged in SGA in multiple months after the grace period, we only document the first month in which a beneficiary met the criteria for suspension due to work. Also, the exhibit does not indicate when overpayments occurred for ease of presentation. However, recall that nearly 90 percent of overpaid beneficiaries were overpaid the first time they engaged in SGA after the grace period.

The relative timing of observed milestones and proportion following each path are documented in Figure 2. The percentages reflect the proportion that advanced to the upcoming milestone along each segment of the branch. Percentages layered on top of a milestone indicate the terminal milestone. Terminal milestones include meeting the criteria for termination for work, non-work exit, and continued entitlement to DI. Note the terminal nodes of suspension followed by a termination because of work means that beneficiaries met the criteria for both suspension and termination for work.

Figure 2. *Pathways to Overpayment*



Notes: This figure represents the program milestones overpaid beneficiaries experienced and captures receipt of employment services from an EN or VR provider (EN/VR), positive earnings (earnings), completion of the TWP (TWP), meeting the criteria for suspension because of work (suspension), meeting the criteria for termination because of work (termination for work), meeting the criteria for non-work exit (non-work exit), and continued entitlement to DI (remain on DI). The percentages between milestones indicate the percentage of all overpaid beneficiaries included in the figure who moved from one milestone to the next. The percentages layered on top of a milestone indicate that was the last observed milestone. Sample size: 23,372 overpaid beneficiaries who had a first milestone of award and had a logical sequence of milestones.
Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR, and Master Earnings File.

More than three-quarters of overpaid beneficiaries in our sample followed one of the three most prevalent overpayment paths. The most common overpayment pathway, experienced by 38.8 percent of overpaid beneficiaries in our sample, was award, earnings, TWP completion, meeting the criteria for benefit suspension because of work, and meeting the criteria for termination because of work. An additional 24.1 percent followed that same pathway but remained entitled to DI, and an additional 13.7 percent left the program for medical termination, retirement, or death rather than work termination. The remaining pathways were much less

frequent. For example, the fourth most prevalent pathway was taken by 4.2 percent of the sample: award, earnings, EN or VR, TWP, meeting the criteria for benefit suspension because of work, and meeting the criteria for termination because of work.

Two trends emerge when looking at the complete set of pathways. First, when overpaid beneficiaries engaged with EN or VR services varied: 6.5 percent of overpaid beneficiaries received these employment services before earning, 9.2 percent received services after having positive earnings but before completing the TWP, 1.6 percent engaged after completing the TWP but before meeting the criteria for benefit suspension because of work, and 2.6 percent received services after their meeting the criteria for their initial benefit suspension. Second, consistent with Liu & Stapleton (2011), termination because of work was the most common final milestone across all pathways and occurred more frequently than remaining on the DI rolls or exit because of medical termination, retirement, or death.

The characteristics of beneficiaries awarded DI benefits in 2008 in our sample varied across the three most prevalent pathways (Table 3). Beneficiaries in the most common pathway ending in work termination were generally similar to all overpaid beneficiaries in our sample. They were primarily male (53.3 percent) and younger than age 45 (66.3 percent), had 12 or fewer years of education (50.0 percent), were most commonly diagnosed with mental disorders (31.0 percent) and did not receive Medicare at first award (81.8 percent). Beneficiaries who followed the earnings, TWP, suspension pathway (the second most common pathway) had the lowest levels of education: 57.8 percent had 12 or fewer years of education. These beneficiaries also had the highest rates of Medicare eligibility at first award (23.6 percent), it is possible that Medicare receipt at award could help beneficiaries with their return to work . Those who exited DI for a non-work reason (the third pathway) were the oldest: less than 40 percent were younger than age 45 at award. This is perhaps not surprising considering that non-work terminations include retirement (as well as death and medical termination). Mental disorders were relatively less common among members of this path (21.7 percent), and neoplasms (that is, cancer) were more common in members of this path compared with beneficiaries in other pathways (16.5 percent).

Table 3. *Characteristics of Overpaid Beneficiaries in the Three Most Frequent Paths*

Characteristic	All overpaid beneficiaries	Sequence of milestones following DI award		
		(1) Earnings-TWP-Suspension-Work Termination	(2) Earnings-TWP-Suspension	(3) Earnings-TWP-Suspension-Non-Work Exit
n	25,846	9,151	5,686	3,236
Sex				
Female	48.3	46.7	50.9	46.8
Male	51.7	53.3	49.1	53.2
Age at first award				
18–24	17.7	18.7	13.0	9.5
25–34	22.4	22.2	23.1	15.5
35–44	24.9	25.5	29.1	14.5
45–54	22.6	23.8	30.8	11.6
55–64	12.5	9.8	4.0	48.9
Education in award year				
0 to 11 years	14.9	14.0	17.4	17.4
12 years	37.7	36.0	40.4	37.1
13 to 15 years	21.9	22.5	20.3	23.2
16 years or more	12.2	14.1	9.8	14.2
Missing	13.3	13.4	12.2	8.2
Impairment type				
Mental disorders	33.8	31.0	37.7	21.7
Intellectual disabilities	5.5	5.4	5.2	0.9
Nervous system and sense organs diseases	8.9	8.2	7.3	5.1
Musculoskeletal and connective tissue diseases	19.9	18.5	24.4	24.3
Neoplasms	7.0	9.5	2.8	16.5
Other physical disorders	24.9	27.4	22.6	31.5
Medicare Eligibility at first award				
Yes	21.8	17.7	23.6	13.5
No	77.1	81.8	75.8	86.4
Missing	1.1	0.5	0.6	0.2
First award includes both SSDI and SSI benefits	16.5	15.7	17.2	10.6

Note: We define suspension and termination because of work dates as the dates when beneficiaries met the programmatic criteria for benefit suspension or termination because of work, even if the determination was made retrospectively.
Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR, and Master Earnings File.

Comparison of Program Experiences of At-Risk Beneficiaries Who Were Overpaid and Not Overpaid

To contextualize the experiences of overpaid beneficiaries, we compared their experiences with those of beneficiaries who engaged in SGA after the grace period and were not overpaid (Table 4). Among beneficiaries awarded DI benefits in 2008 who met the criteria for benefit suspension or termination for work within 10 years of award and were at risk of overpayment, 82.0 percent were overpaid, and 18.0 percent were not overpaid. The latter group comprised beneficiaries for whom SSA withheld benefits in real time. Compared with at-risk beneficiaries who were not overpaid, those who were overpaid were more likely to be female (48.3 versus 44.3 percent), be younger than age 45 (64.9 versus 56.5 percent), have 12 or fewer years of education (52.6 versus 44.6 percent), have mental disorders (33.8 versus 28.4 percent) or intellectual disabilities (5.5 versus 1.9 percent), have Medicare eligibility at first award (21.8 percent versus 15.0 percent), and receive SSI at the time of DI award (16.5 percent versus 9.5 percent).[10]

At-risk beneficiaries who were overpaid experienced program milestones at different rates than those who were not overpaid (Figure 3). We do not show earnings and TWP completion in this figure because all beneficiaries in our sample had positive earnings and completed the TWP. Overpaid beneficiaries were less likely to meet the criteria for benefit suspension (94.1 versus 99.0 percent) than at-risk beneficiaries who were not overpaid; the balance of both groups experienced a termination for work.[11] Overpaid beneficiaries were less likely to exit the DI program because of work termination (55.4 versus 63.0 percent). They were also less likely to terminate for non-work reasons (23.7 percent versus 26.1 percent) relative to those who were not overpaid. Specifically, overpaid beneficiaries were more likely to experience medical termination than at-risk beneficiaries who were not overpaid (9.4 versus 6.2 percent) but less likely to retire (10.2 versus 14.0 percent) or die (5.8 versus 8.6 percent).[12] Some of these differences might be related to the relatively younger age, advanced education,

[10] An earlier paper found qualitatively similar findings when comparing characteristics among a representative 10 percent sample of DI beneficiaries who met the criteria for benefit suspension or termination for work between 2010 and 2012 (Hoffman et al., 2019).

[11] This scenario can occur if a beneficiary completes the TWP, engages in SGA to initiate the extended period of eligibility (during the grace period), and does not engage in SGA again until after the completion of the 36 month extended period of eligibility, at which point benefits are terminated.

[12] Note that some beneficiaries experienced several outcomes (for example, medical termination and death) during our analysis period and are recorded in multiple categories.

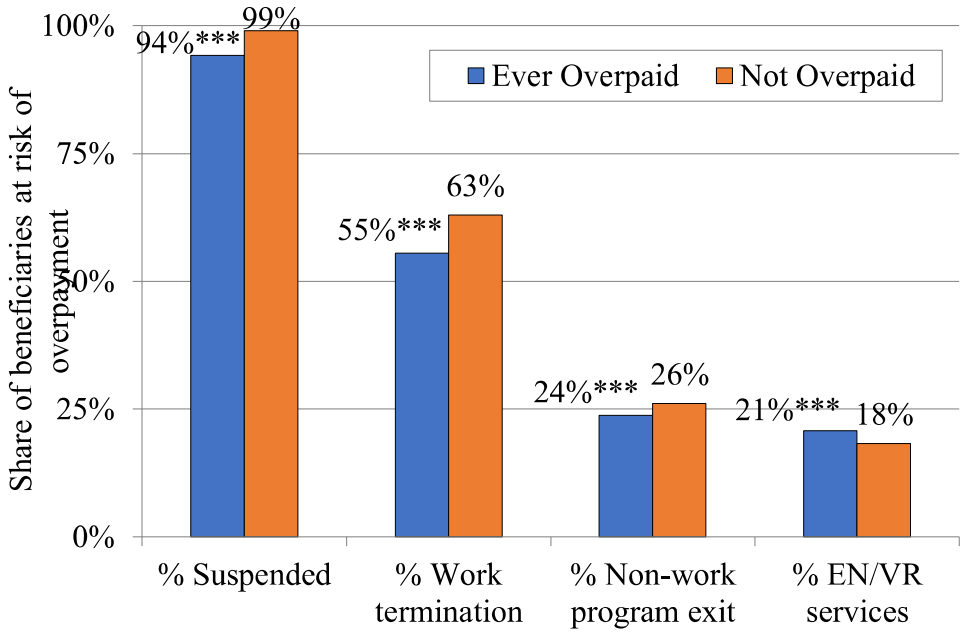
and different medical conditions of overpaid beneficiaries. Relative to those not overpaid, overpaid beneficiaries were more likely to have received EN or VR services (20.8 percent versus 18.3 percent).

Table 4. *Comparison of Characteristics of At-Risk Beneficiaries Who Were Overpaid to Those Not Overpaid*

Characteristic	All overpaid beneficiaries	At-risk beneficiaries not overpaid	Difference
n	25,846	5,674	
Sex			
Female	48.3	44.3	4.0***
Male	51.7	55.7	-4.0***
Age at first award			
18–24	17.7	13.1	4.5***
25–34	22.4	20.3	2.1***
35–44	24.9	23.0	1.8***
45–54	22.6	26.8	-4.3***
55–64	12.5	16.7	-4.2***
Education at first award			
0 to 11 years	14.9	9.2	5.7***
12 years	37.7	35.5	2.3***
13 to 15 years	21.9	24.6	-2.8***
16 years or more	12.2	22.1	-9.8***
Missing	13.3	8.7	4.6***
Impairment type			
Mental disorders	33.8	28.4	5.4***
Intellectual disabilities	5.5	1.9	3.6***
Nervous system and sense organs diseases	8.9	8.1	0.8*
Musculoskeletal and connective tissue diseases	19.9	18.6	1.3**
Neoplasms	7.0	16.6	-9.6***
Other physical disorders	24.9	26.5	-1.6**
Medicare Eligibility at first award			
Yes	21.8	15.0	6.8***
No	77.1	84.1	-7.0***
Missing	1.1	0.8	0.2
First award includes both SSDI and SSI benefits	16.5	9.5	7.0***

Notes: T-test significance is shown in the final column. * Indicates $p < 0.10$, ** indicates $p < 0.05$, and *** indicates $p < 0.01$.
Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR.

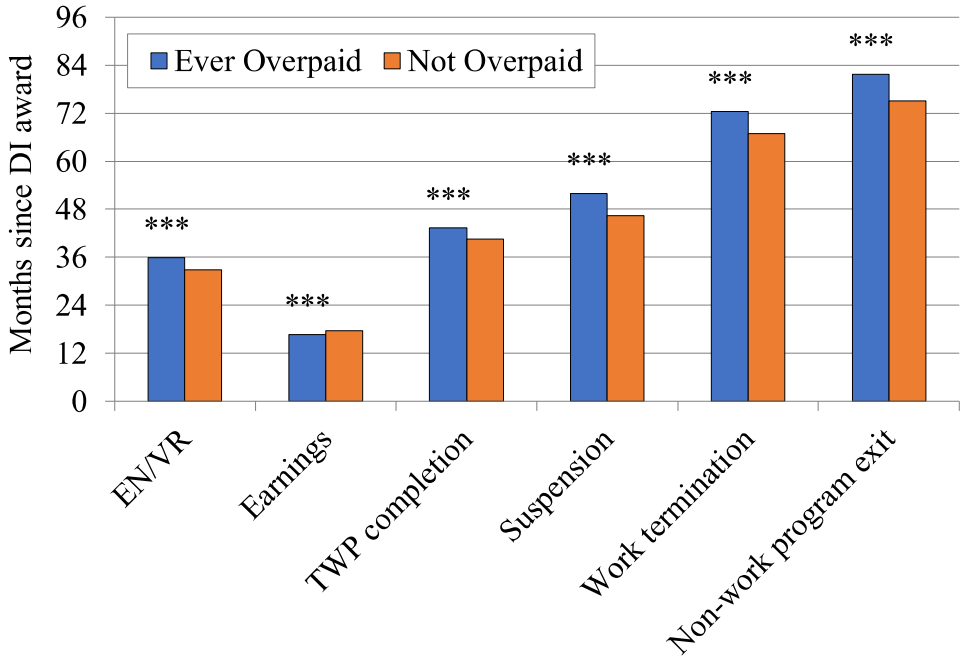
Figure 3. *Share of At-Risk Beneficiaries Reaching Each Milestone among Overpaid and Not Overpaid Beneficiaries*



Notes: T-test significance is shown above each pair of columns. * Indicates $p < 0.10$, ** indicates $p < 0.05$, and *** indicates $p < 0.01$. Sample sizes: 25,846 overpaid beneficiaries and 5,674 at-risk beneficiaries who were not overpaid.
Source: 2019 Disability Analysis File, December 2020 DBAD extract from the MBR.

In addition to differences in the rates of milestone achievement, there were also differences in the time from award to milestone among those who achieved given milestones by overpayment receipt (Figure 4). Relative to beneficiaries who were at risk but not overpaid, overpaid beneficiaries achieved almost all milestones except for earnings later. Notably, overpaid beneficiaries first met the criteria for benefit suspension an average of six months after non-overpaid beneficiaries and first received employment services three months later. On the other hand, overpaid beneficiaries had their first month of positive earnings about one month sooner than those who were not overpaid (17 versus 18 months after DI award). Although this difference is statistically significant, 14 percent of earnings dates were imputed, and the type of imputation differed across the two groups, so it is difficult to definitively state that this is a meaningful difference.

Figure 4. *Months from Award to Each Milestone for Overpaid and Not Overpaid Beneficiaries*



Notes: T-test significance is shown above each pair of columns. * Indicates $p < 0.10$, ** indicates $p < 0.05$, and *** indicates $p < 0.01$. Sample sizes: EN/VR: 1,548 overpaid, 312 not overpaid; earnings: 25,846 overpaid, 5,674 not overpaid; TWP completion: 25,846 overpaid, 5,674 not overpaid; suspended: 24,321 overpaid, 5,617 not overpaid; work termination: 14,329 overpaid, 3,753 not overpaid; non-work program exit: 6,131 overpaid, 1,481 not overpaid. *Source:* 2019 Disability Analysis File, December 2020 DBAD extract from the MBR, and Master Earnings File.

Discussion and Conclusion

This analysis provides new details on the overpayment-related experiences of 2008 DI awardees. We find that nearly 4 percent of beneficiaries were at risk of a work-related overpayment because they engaged in SGA after the TWP and grace period and, among that group, 82.0 percent of beneficiaries were overpaid in the first 10 years after award. These results provide additional evidence that overpayments were the norm for beneficiaries who engaged in SGA after the TWP and grace period. A previous study found that, among a representative cross-section of beneficiaries, 71.0 percent of those at risk of overpayment were overpaid in the three-year period from 2010 to 2012 (Hoffman et al., 2019). The higher prevalence noted in this study likely reflects the longer analysis period (three versus ten year), among other differences. Both the previous and current study estimated median overpayment duration of nine months and total overpayment amounts of about $9,300.

Our analysis focuses on beneficiaries awarded and 2008 and results may not generalize to beneficiaries awarded benefits in other years. For example, it is possible that overpayment experiences will differ for beneficiaries in more recent award cohorts because SSA has made increasing efforts to prevent or minimize overpayments in recent years. In 2017, after an initial pilot period, SSA began to draw on quarterly earnings data from the National Directory of New Hires when reviewing earnings for all DI beneficiaries. As of 2020, SSA was in the process of working with payroll data providers to access timely earnings data among beneficiaries paid through those providers (SSA, 2020a).

This study also offers new insight into the timing of overpayments. First, nearly all overpayment spells (89.0 percent) began in the first month beneficiaries meet the programmatic criteria for benefit suspension because of work. Second, most overpaid beneficiaries (79 percent) followed a direct route to overpayment: experiencing award, earnings, TWP completion, then meeting the criteria for suspension because of work. Third, although time to first overpayment varied, half of all overpayments documented in this study occurred in the first four years after award. Finally, about one in six overpaid beneficiaries (15.6 percent) received EN or VR services before their first month of benefit suspension.

The timing and sequence of program experiences among overpaid beneficiaries suggests two possible points of intervention to prevent or minimize overpayments. Because most overpayment dollars result from beneficiary reporting failures (SSA, 2018), and a substantial share occur in the first four years after award, well-formatted earnings reporting reminders sent in the first four years after award might help encourage reporting and reduce the likelihood or amount of overpayment. Zhang et al. (2020) found that earnings reporting reminders made to Supplemental Security Income beneficiaries with disabilities helped reduce the incidence of overpayments. Although the SSI and DI programs have different reporting requirements, it is possible that the same practice reflecting SSI reporting standards would be effective for DI beneficiaries. In addition, Hoffman et al. (2020) reviewed written SSA communications to DI beneficiaries about earnings reporting and found that beneficiaries were infrequently notified of the requirements, and content on earnings reporting was often located at the end of documents or in dense text. Efforts to promote beneficiary reporting could supplement SSA initiatives to identify earnings more quickly. However, there is not existing evidence about the overall effectiveness or cost effectiveness of reporting reminders for DI beneficiaries.

A second possible intervention could occur in partnership with employment service providers. Because about one in six overpaid beneficiaries received EN or VR services before first suspension, engaging those providers in issuing earning reporting reminders or directly assisting with earnings reporting could help avoid overpayments. Under Ticket to Work, ENs and VRs not serving clients under cost reimbursement have an existing incentive to collect earnings information from their clients to facilitate outcome-based payments. However, this research highlights that, despite this incentive, EN and VR providers may sometimes be unable to facilitate earnings reporting and if reported, may not result in timely SSA case reviews.[13] Highlighting the potential consequence of overpayments to clients or creating client incentives to report could improve reporting rates in a way that benefits both clients and providers.

Finally, although work termination is the most common final milestone across all pathways taken by overpaid beneficiaries, such beneficiaries are 7.5 percentage points less likely to experience work termination in the first 10 years after DI award compared with at-risk beneficiaries who are not overpaid. The two groups differ in other observable ways (for example, those who are overpaid have lower levels of education) and likely in unobservable ways which could help explain this difference. Relative to those not overpaid, overpaid beneficiaries are younger, more likely to medically terminate, and less likely to die, suggesting that they are in better health. Although alternate explanations are possible, this comparison and the evidence shown in Figure 3 is consistent with the notion that overpayments might cause beneficiaries to reduce employment. Other research has found a causal link between overpayment and disengagement from SGA (Hoffman et al., 2020). Although the current study is not meant to demonstrate a causal link between overpayments and subsequent SGA, when considered with existing research, findings collectively suggest that reducing overpayments may help more beneficiaries maintain SGA. When overpayments do occur, outreach efforts or supports to overpaid beneficiaries might help them maintain employment and attain financial self-reliance and independence from the DI program.

This analysis is subject to several limitations. First, the overpayment algorithm might not capture all work-related overpayments. For example, our algorithm does not account for

[13] SSA instituted the Monthly Earnings Project (MEP) in 2019. MEP established a systematic means of determine whether reported earnings were potential overpayments cases and effectively transfers the cases to SSA's processing center for immediate attention and case review on a monthly basis.

repayment plans for other overpayments or lump-sum transfers for underpayments. Yet SSA case reviews of 20 beneficiary records with overpayments found that the algorithm estimated the overpayment amount within 0.3 percent of SSA's calculation (Hoffman et al., 2019). Second, this analysis focused on the first occurrence of work- and program-related milestones. For example, we documented the first month beneficiaries met the criteria for benefit suspension because of work rather than documenting all months beneficiaries met the criteria for benefit suspension. We used this approach to streamline the analysis because of the sheer volume of all milestones that might occur during a 10-year period. We describe some milestones that might occur multiple times by documenting the number of overpayment spells and duration between spells. This approach, however, overlooks some nuance in beneficiary experiences. Third, we imputed earnings dates for nearly 15 percent of our analysis sample, which could have affected the precision of earnings dates. Fourth, we documented the experiences of the 2008 cohort of new awardees, and their experiences might not represent other awardee cohorts.

Despite these limitations, this study adds to the evidence on beneficiaries' experiences with overpayments and yields some insight into approaches that might help reduce overpayments. Future research could attempt to uncover more details about the mechanisms behind why beneficiaries are overpaid and the extent to which certain entities—such as EN or VR, SSA-funded benefits counselors, SSA field offices, or the centralized SSA toll-free number— might have the ability to prevent or minimize overpayments. These pathways may remain important even as SSA pursues initiatives to reduce overpayments, such as establishing information exchange agreements with payroll data providers. Although there is reason to be optimistic that timely information on wages from payroll providers will reduce overpayments, these agreements do not cover all employers nor self-employed workers.

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