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# How Do Work-Related Overpayments Affect the Earnings of Overpaid Social Security Disability Insurance Beneficiaries?

## DRC Working Paper

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## Abstract

**Project Number:** D-MP-17-03

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**Key Findings and Policy Implications**

Work-related overpayments occur when the Social Security Administration (SSA) issues a monthly Social Security Disability Insurance (SSDI) benefit to which a beneficiary is not entitled because he or she engaged in substantial gainful activity (SGA). SGA was defined in 2020 as monthly work activity valued at over $1,260 in 2020 for nonblind individuals and $2,110 for blind individuals.

Overpaid beneficiaries must reimburse SSA for any overpaid benefits, which have a median value of more than $9,000 according to a recent study (Hoffman et al., 2019). Some qualitative reports suggest that notification of a work-related overpayments cause beneficiaries to take a negative view of work and to stop engaging in SGA. Others suggest that beneficiaries work more following an overpayment to help repay their debt.

In this study, we used SSA administrative data to estimate the relationship between notification of overpayment debt and subsequent engagement in SGA. Our empirical analysis focused on a sample of SSDI beneficiaries who were likely not expecting an overpayment debt notification. We exploited the randomness in the timing of the overpayment debt notification by comparing beneficiary work activity right after the notification with work activity right before; this enabled us to gauge the causal impact of an overpayment debt notification on earnings.

**We found that:**

- The share of overpaid beneficiaries engaging in SGA in the month of overpayment debt notification declined by 2.2 percentage points, with an additional 1.9 percentage point decline in the following month. Relative to the 57 percent of overpaid beneficiaries who engaged in SGA in the month before notification, this represents a 3 to 4 percent drop in the share who engaged in SGA each month.
- Overpayments were associated with larger declines in SGA among beneficiaries in certain subgroups, including those with less than a high school education; those age 45 and above; those with a full benefit amount of over $1,000; those who concurrently receive Supplemental Security Income; and those whose primary impairments were back or other musculoskeletal disorders.

The decline in SGA immediately after overpayment notification suggests that policies and procedures that curtail overpayments may better align with continued employment.

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# I. Introduction

Social Security Disability Insurance (SSDI) is the nation's largest safety net program for people with disabilities. Operated by the Social Security Administration (SSA), the program provides cash benefits to qualifying beneficiaries who cannot work at substantial levels because of a disability; after a two-year waiting period, the program also provides them with Medicare. More than 10 million people received SSDI benefits in 2017, totaling over $11 billion per month (SSA, 2018a).

Despite having severe and long-lasting health conditions at the time of award, many SSDI beneficiaries are work-oriented and some return to work. Previous research estimates that 40 percent of SSDI beneficiaries have work-related goals and expectations (Livermore, 2011), and from 2011 through 2015, an estimated 22 percent were employed (Gubits et al., 2018). Since the early 2000s, SSA has implemented numerous programs and demonstrations designed to promote work among SSDI beneficiaries.

But employment may affect SSDI benefits. To remain eligible, SSDI beneficiaries must not be able to engage in substantial gainful activity (SGA), which was defined in 2020 as monthly earnings over $1,260 for nonblind beneficiaries and over $2,110 for blind beneficiaries. SSDI program rules indicate that SSA should withhold cash benefits during the months in which beneficiaries engage in SGA. However, SSA may inadvertently issue a monthly benefit to these beneficiaries—known as a work-related overpayment.

Such overpayments are prevalent among working SSDI beneficiaries. Recent research suggests that SSA overpaid 71 percent of SSDI beneficiaries who engaged in SGA after an initial period to test work (Hoffman et al., 2019). The same research indicates that the median overpayment among those overpaid was over $9,000 and that nearly one-quarter of overpayments were more than $16,000. These amounts can be quite high relative to a beneficiary's monthly benefit check; 58 percent of overpaid beneficiaries had a monthly SSDI benefit of less than $1,000. Beneficiaries typically must repay overpayment debt, although some successfully appeal an overpayment decision and are not required to repay the debt.

Notification of overpayment debt can affect beneficiary work behavior because it represents a large financial burden on a vulnerable population stemming from past work activity. However, the direction of the behavioral change in response to this notification is ambiguous. If beneficiaries know the program rules and their own program status, they may be aware that work-related overpayments are accruing. In such cases, they could view an overpayment as an interest-free loan and continue working to pay off the debt. But, if they do not know the program rules, or if they assume that SSA would not pay benefits to which they are not entitled, they may be surprised to learn of an overpayment debt. The distress of learning about an overpayment may discourage people who previously engaged in SGA from continuing to work at that level.

Several qualitative studies indicate that some beneficiaries reduced their work hours or quit their jobs in response to news of an overpayment (Derr et al., 2015; O'Day et al., 2016; Hoffman et al., 2017; Kregel, 2018). One beneficiary explained this as a reaction to a perceived penalty for working. But some of the same studies also documented the opposite reaction: some beneficiaries maintained or increased their earnings after learning about an overpayment (O'Day et al. 2016; Hoffman et al. 2017). One beneficiary said that he increased his earnings to help repay his overpayment debt. However, based on these anecdotal descriptions alone, it is not possible to determine the extent to which notification of an overpayments affects behavior.

In our study, we used SSA administrative data to estimate the relationship between a notification of an overpayment debt and subsequent work activity. Our empirical analysis exploited variation in the timing of the overpayment debt notification by comparing beneficiary earnings in the period right after notification with earnings in the period right before. Besides helping SSA better understand and address the impact of SSDI overpayments on employment, our findings may also broadly apply to other government programs that serve vulnerable populations. Recipients of Supplemental Security Income (SSI), Social Security Retirement, Unemployment Insurance, Veteran Affairs income-based pensions, and the Earned Income Tax Credit (EITC) are all subject to overpayments that arise from work activity. If such overpayments affect the employment behavior of SSDI beneficiaries, it is possible that they affect people's work behavior in other programs as well. Of course, the findings for SSDI overpayments are unlikely to exactly translate to other programs because of differences in the populations served and program structure.

## II. Background

The amount of SSDI benefit payments due in a given month is based, in part, on the beneficiary's earnings in that month and, if warranted, benefits are paid in the following month. Beneficiaries are allowed a nine-month trial work period during which they maintain benefit payments for those months even if they have earnings above the SGA threshold. After completing the trial work period, the beneficiary enters a 36-month extended period of eligibility (EPE). If a beneficiary engages in SGA during the EPE, program rules state that his or her disability has ceased. The beneficiary is still entitled to benefits during that month and the following two months—collectively known as the grace period—but after the grace period, beneficiaries are not eligible for a benefit check for any month in which the beneficiary engages in SGA. Conversely, beneficiaries are eligible for a benefit check in any EPE month in which they do not engage in SGA. If a beneficiary engages in SGA after the EPE is over, cash benefits are subject to termination. For a more complete description of SSDI policy regarding work activity, see SSA (2019a).

To facilitate proper benefit payments, SSA rules require SSDI beneficiaries to notify SSA immediately when they start or stop work; have a change in duties, hours, or pay; or start paying for impairment-related work expenses (SSA 2018b). SSA also obtains information from other sources, including third-party reports, annual earnings data from the Internal Revenue Service, and starting in 2017, quarterly earnings information from the Office of Childhood Support Enforcement which maintains the National Directory of New Hires.

When SSA learns of beneficiary earnings, it must evaluate earnings and the use of work incentives such as the trial work period to determine entitlement to cash benefits. This complex process is known as a work continuing disability review. The first step is to send a work activity report form to the beneficiary, who is asked to return the completed form within 15 days. The form asks for information on past earnings, paid time off, impairment-related work expenses, and other employment-related topics, which SSA uses to determine whether he or she was eligible for past benefits and can continue to receive disability benefits.

If the review indicates that a beneficiary engaged in SGA after the trial work period for the first time, SSA sends the beneficiary a due process notice. This notice says that SSA has determined that the beneficiary's disability has ceased because of SGA and provides an opportunity to submit evidence that may affect this determination. Beneficiaries have 15 days to respond, at which point SSA considers any additional information and, if its decision has not changed, proceed to finalize the cessation date. Once final, SSA mails a cessation notice to the beneficiary, informing him or her that benefits have ceased because of SGA. The cessation notice may include language at the end forewarning beneficiaries of the possibility of an underpayment or overpayment: "You will be notified later if we owe you any back benefits or you are overpaid any benefits." However, the cessation notice only indicates the possibility of an overpayment (as well as an underpayment) and beneficiaries may not realize that if they are overpaid, SSA program rules will require them to repay the overpayment debt.

If SSA retroactively determines that a beneficiary engaged in SGA after completing the grace period but continued to receive benefits, then SSA overpaid the beneficiary. Overpayments are most likely to occur if a beneficiary does not report their earnings to SSA in a timely way, as required by program rules; in a recent report, the SSA Office of the Inspector General (OIG) found that 83 percent of beneficiaries with a work-related overpayment did not report their earnings (SSA OIG 2018). OIG also found that 35 percent of work-related overpayment dollars were attributable to delays in SSA's processing of earnings

information, which in turn causes delays in suspending or terminating benefits. In 2016, the average duration between initiating a work continuing disability review and completing one was 198 days across all reviews (SSA 2017). The average duration was longer—308 days—for cases with unreported earnings. These delays are on top of any delays in SSA learning about unreported earnings from administrative data or work reports, during which time the beneficiary may continue to accrue overpayments. SSA processing times were notably shorter in 2017, averaging 126 days across all types of reviews in 2017 (SSA 2019b); statistics are not available for years before 2016.

After identifying an overpayment, the agency typically informs the beneficiary via a mailed notice. The notice indicates that the beneficiary was overpaid, states the amount of the overpayment, indicates liability for repayment, and informs the beneficiary of the right to appeal or request a waiver of the overpayment recovery. In this paper, we refer to this as "notice of overpayment debt" because even if beneficiaries suspect an overpayment, they cannot know the amount of the overpayment until they are notified by SSA staff. Beneficiaries who appeal or request a waiver may succeed in reducing or eliminating the overpayment; of all the overpayment debt (work-related and otherwise) identified annually between 2003 and 2011, between 7 and 27 percent was waived or canceled as of February 2014 (SSA OIG 2015). All other beneficiaries must repay. The most common means of repayment is through either partial or complete withholding of SSDI benefits (Government Accountability Office 2011).

# III. Methods

## A. Data

Our analysis is based on data from SSA's Recovery of Overpayment, Accounting, and Reporting (ROAR) System, which is used to record and control the recovery of overpayments to SSDI and other beneficiaries. ROAR is an accounting tool and was not designed for research purposes, but contains a rich set of information on overpayments. Specifically, it generally includes information on the causes of the overpayments, the overpayment amounts, and the collection status. Only select SSA employees are able to access the ROAR data. We worked with SSA information technology managers with ROAR access to create a data extract for our research, which was housed at SSA and only accessible by our SSA co-author.

We used the ROAR data to identify work-related overpayments occurring for any of three reasons: SGA, SGA during the EPE, and continuing disability reviews resulting in the cessation of disability benefits. A team at SSA that oversees the ROAR System verified these categories as standard indicators of work-related overpayments. We did not include overpayments that were due to disability cessation because, although this category can include work cessations, it also includes medical cessations. We used the date when SSA identified the overpayment as a proxy for when beneficiaries received notice of their overpayment debt, which should occur within five days of when SSA identified the overpayment.

We then linked the ROAR data to SSA's 2016 Disability Analysis File (DAF), which includes administrative data on program and beneficiary characteristics of SSDI beneficiaries who received benefits in at least one month from January 1996 through December 2016. This information helped us construct employment histories before and after beneficiaries received an overpayment notice and to document beneficiary and program characteristics at the time of overpayment.

The final source of data for this analysis is SSA's Electronic Work (eWork) system. eWork records information used to process work continuing disability reviews. Specifically, eWork records the date that SSA starts the review, which is roughly when SSA mails a work activity report form to the beneficiary, and the date that SSA sends the cessation notice to the beneficiary, explaining that benefits have ceased because of SGA. This information enabled us to control for the timing of these notifications in our analysis.

## B. Analysis Sample

From the ROAR System, we extracted data on SSDI primary beneficiaries whose first instance of a work-related overpayment was identified by SSA from January 1, 2007, through November 16, 2014. We ended the analysis in 2014 to allow for a sufficient follow-up period to track work activity using the DAF available at the time of analysis, which ended in December 2016.

We applied two additional sample restrictions. First, we excluded cases in which a beneficiary earning report initiated the work continuing disability review because these beneficiaries may have anticipated an overpayment. We instead focused on beneficiaries who had overpayments identified by SSA (that is, the beneficiary did not self-report his or her earnings to SSA) because we assumed that these beneficiaries were more likely to learn of their overpayment debt from SSA notifications. This excluded less than 1 percent of beneficiaries overpaid for work, which is lower than expected based on an SSA report that found that 83 percent of beneficiaries with a work-related overpayment did not report their earnings, suggesting that 17 percent did report (SSA OIG 2018). Hence, our analysis sample may include some

beneficiaries who reported earnings—and may have anticipated their overpayment debts—which would dampen our results.

Second, we only included beneficiaries who had no missing information on our key outcome variable—presumed engagement in SGA—in all months of our analysis window, which we defined as the six months before, the month of, and the six months after SSA notified beneficiaries of work-related overpayment debt. This restriction excluded 16 percent of beneficiaries who otherwise met the sample selection criteria. Beneficiaries generally have earnings and SGA information available during the trial work period and grace period, but this information tends to become less available over time after the grace period ends and is particularly notable following benefit termination after the EPE ends. SSA does not always continue to record information once benefits are terminated due to SGA; thus, we cannot assess presumed engagement in SGA based on termination status alone.

Excluding beneficiaries with missing information could lead to overestimations in our results if beneficiaries who are nearing the end of their EPE (and therefore more likely to be missing SGA information) are the ones most likely to continue working after receiving an overpayment notice. We tested for this in a sensitivity check that shortened the length of the analysis window, thus reducing the number of excluded observations due to missing data.

Table 1 shows the characteristics of our final sample, which consists of 113,754 SSDI beneficiaries who received a work-related overpayment between January 1, 2007 and November 16, 2014. Roughly one-quarter (28 percent) of these beneficiaries received their first SSDI award between 1996 and 2004, almost half (43 percent) first received SSDI between 2005 and 2009, and about one-fifth (21 percent) first received SSDI in or after 2010. The average monthly benefit amount was almost $1,200, and the average overpayment amount was almost $11,000. The average time that elapsed between the beginning of the EPE and the overpayment notification was 28 months, or just over two years. This time frame ranged from four months to 148 months.

**Table 1. Sample characteristics at the time of overpayment notification**

| Variable | Mean |
|---|---|
| **Demographic characteristics** | |
| Age (years) | 45.7 |
| Education (years) | 12.5 |
| Female (%) | 49.0 |
| **Impairment** | |
| Affective disorder (%) | 18.9 |
| Other psychiatric disorder (%) | 13.7 |
| Intellectual disability (%) | 5.3 |
| Sensory impairment (%) | 4.9 |
| Back disorder (%) | 11.7 |
| Other musculoskeletal disorder (%) | 9.6 |
| Other physical impairment (%) | 35.9 |
| **Year of first SSDI award** | |
| 1996–1999 (%) | 6.3 |
| 2000–2004 (%) | 21.5 |
| 2005–2009 (%) | 43.4 |
| 2010–2014 (%) | 21.0 |
| Missing (%) | 7.9 |
| **Program-related characteristics** | |
| Full benefit amount | $1,168 |
| Representative payee (%) | 8.3 |
| SSI receipt at SSDI award (%) | 2.6 |
| **Overpayment characteristics** | |
| Mean months between SSDI start date and overpayment notification | 67.0 |
| Mean months between EPE start date and overpayment notification | 28.2 |
| Overpayment amount | $10,728 |
| **Sample size: 113,754** | |

*Source*: Data from ROAR System and DAF, 2007–2014.

## C. Methodological Approach

Our empirical strategy exploited the panel structure of our data to examine changes in our outcome of interest for each beneficiary before and after the overpayment notification. For each beneficiary, we created an analysis window that includes the six months before, the month of, and the six months after SSA notified him or her of a work-related overpayment. We used the date when SSA identified the overpayment as a proxy for when beneficiaries received notice of their overpayment debt, which should occur within five days of when SSA identified the overpayment.

Our key outcome of interest was an indicator of beneficiary engagement in SGA. We constructed this measure of beneficiary work activity based on two variables in the DAF. The first variable was an indicator of countable earnings—the earnings SSA considers when calculating SGA, which excludes earnings protected by various SSA work incentives—above the SGA level in a given month. This variable was missing for about one-third of beneficiaries in our analysis sample in the first months of the analysis period and for about two-thirds of beneficiaries in the last months of the analysis period. When

this variable was missing, we instead used a second variable in the DAF—an indicator of whether SSA suspended or terminated benefits because of presumed SGA-level employment in each month—as our measure of work activity.

After a beneficiary completes the trial work period and grace period, benefit suspension due to work indicates that the beneficiary's countable earnings are above the SGA level. Note that this is an inference rather than direct evidence of SGA; the *presumption* of SGA engagement is implicit when referencing our key outcome measure. However, we think this is a credible metric because this is based on the administrative approach SSA uses to suspend benefits due to SGA. In addition, beneficiaries have a strong incentive to contact SSA and have their record updated if they did not engage in SGA, so that they may receive cash benefits for those months. This approach allows us to create a balanced panel and to minimize the number of records excluded due to missing information on SGA status.

We estimated the following fixed-effects regression model to provide an estimate of the causal impact of a notification of overpayment debt on engagement in SGA:

$$[1] SGA_{im} = \sum_{m=-6}^{-2} \delta_m ' Month_{im} + \sum_{m=0}^{6} \lambda_m ' Month_{im} + \alpha_i + \gamma C_{im} + \varepsilon_{im}$$

where $SGA_{im}$ is an indicator for whether beneficiary *i* worked above the SGA level in analysis month *m*. $Month_{im}$ are binary variables indicating the month relative to the overpayment debt notification month (*m* = 0); *m*= -6 through -2 indicates the six months before notification, and *m* =1 through 6 indicates the six months after notification. The month immediately before notification is the omitted category to which all other months are compared. $\alpha_i$ represents beneficiary fixed effects that control for observed and unobserved time-invariant beneficiary characteristics. The vector $C_{im}$ includes three time-varying characteristics: (1) an indicator for whether the beneficiary received a work activity report form signaling that SSA will examine his or her work activity in or before month *m*, (2) an indicator for whether the beneficiary had received an SSA notification that his or her disability has ceased due to work activity in or before month *m*, and (3) the monthly unemployment rate in his or her state of residence. The first two indicators address concerns that beneficiaries who recently received such SSA communication may have adjusted their SGA in response and are less likely to adjust it again, and the unemployment rate controls for the availability of job opportunities. Finally, $\varepsilon_{im}$ is the error term. We calculated robust standard errors that are clustered by beneficiary.

The coefficients on the post-notification monthly indicators ($\lambda_m$) estimated SGA engagement in each month after the overpayment debt notification compared with the month before the notification (month *m* = -1). We calculated the per-month decline in SGA relative to the previous month as the difference between $\lambda_m$ and $\lambda_{m-1}$. To interpret these coefficients as the causal effect of the overpayment debt notification on SGA engagement, the key identifying assumption is that the specific timing of the notification is effectively random. Indeed, one qualitative study of beneficiaries working with a work incentives counselor shows that overpayments came as a surprise to most of those beneficiaries (Kregel 2018). Before the notification of overpayment debt, beneficiaries do receive notices from SSA informing them that SSA is investigating or has made decisions about work activity and benefits. These notices may cause beneficiaries to decrease or stop work activity, which helps us to isolate the effect of learning about the overpayment debt itself, rather than learning about benefit cessation. Furthermore, we attempted to

exclude beneficiaries who reported earnings to SSA, as they were presumably more likely to have anticipated an overpayment debt.

We tested several alternative specifications as well. First, although we estimated equation [1] using a linear probability model, the results are robust to using a logit model. Second, the results are also robust to including observed beneficiary and program covariates instead of the beneficiary fixed effects ($\alpha_i$). Finally, we estimated parametric models (i) with a linear time trend and (ii) with a quadratic time trend. The model with the linear time trend did not appear to fit the data, while the model with the quadratic time trend produced results that are qualitatively similar to but slightly larger in magnitude than the non-parametric model. The results from these alternative specifications are available from the authors upon request.

The next step in our analysis was to estimate equation [1] for different subgroups to see whether the impact of the overpayment notification on SGA varied by beneficiary characteristics. We defined these subgroups by age (over 45 years old versus younger), education (more than 12 years of school versus less), full benefit amount (less than $1,000 a month versus more), impairment type, receipt of SSI in addition to SSDI, and receipt of a work activity report form indicating that SSA will review the beneficiary's work activity during the analysis period. Although we controlled for the receipt of the work activity report form in the main specification, the last subgroup is another method of fully separating the effects of the work activity report form from the effects of the overpayment debt notification. We would be less likely to see the confounding effects of a work activity report form in the group that received this form before the analysis period.

Finally, we conducted three sensitivity checks to examine how our findings would change depending on the model and sample specification. The first sensitivity check was to shorten the duration of the analysis window to three months before notification and three months after. An implication of our study's empirical design is that we had to drop 16 percent of beneficiaries who otherwise met our selection criteria but lacked data for the entire 13-month analysis window; shortening this window to three months resulted in fewer dropped beneficiaries and increased our sample size.

Our second sensitivity check was to exclude beneficiaries whose overpayment debts were subsequently canceled or reduced. These individuals may have had a smaller response to the overpayment debt notification because they may not have expected to need to pay back the money. On the other hand, these beneficiaries may have responded the same way as other beneficiaries responded because they had no way to know that their overpayment appeal would succeed when they received their notification. Another interpretation could be that beneficiaries who successfully appeal overpayments are a select group that differ from other overpaid beneficiaries.

The final sensitivity check was to conduct falsification tests in which we assigned false overpayment debt notification dates to the individuals in our sample and examined the change in SGA after these dates. We conducted two falsification tests: one used a false date that was one year before the true overpayment debt notification date, and the other used a false date that was four months before SSA began the work continuing disability review.

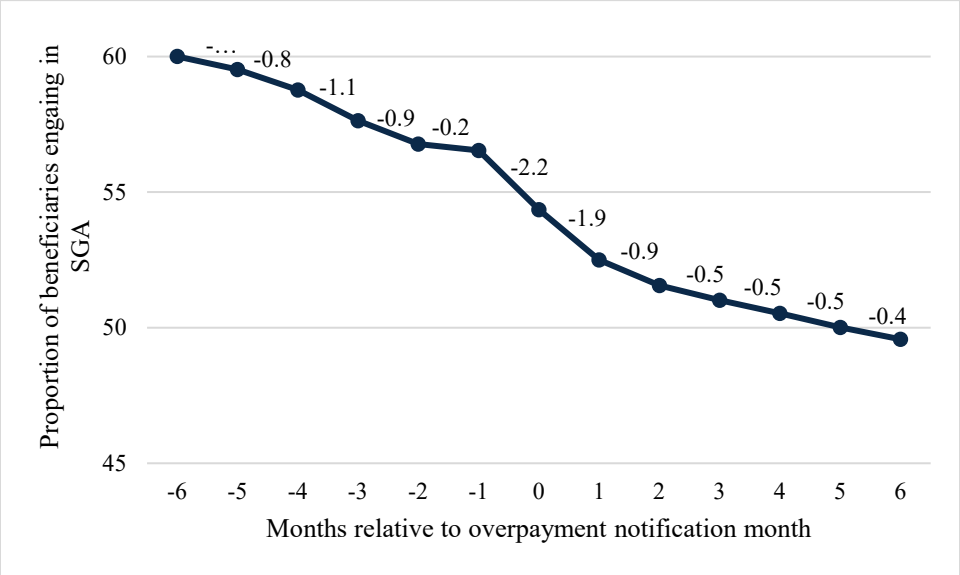
As mentioned earlier, information on SGA engagement is sometimes missing in the DAF data; as a result, 33 percent of the main sample was missing SGA data for at least one month in the first falsification window, and 22 percent was missing SGA data for at least one month in the second falsification window. To avoid introducing bias by comparing results for different samples of beneficiaries, we estimated the

falsification regression and re-estimated the main regression using only those beneficiaries who had SGA data for all months of both the main analysis window and the falsification window.

## IV. Results

Figure 1 shows the regression-adjusted proportion of beneficiaries presumably engaging in SGA in each month of our analysis window, based on the coefficients from the regression model estimated in equation [1]. Engagement in SGA is highest, around 60 percent, at the start of the analysis period, six months before overpayment notification. Because the sample includes beneficiaries overpaid for SGA after the trial work period, all beneficiaries in the sample engaged in SGA at some point. Hence, by the start of the analysis period, there has been a notable decline in SGA. This underscores the fact that there is an existing downward trend in SGA that is unrelated to overpayment notification.

**Figure 1. Monthly regression-adjusted proportion of overpaid beneficiaries engaging in SGA**




*Source*: Data from ROAR System; DAF, 2007–2014; and eWork.

Note: The percentage point change from the previous month appears above the line.

In addition to presenting the regression-adjusted proportion of beneficiaries engaging in SGA, Figure 1 also indicates the decline in the proportion engaging in SGA from the previous month. The results show small decreases in SGA in the months leading up to the notification of overpayment debt, the largest single-month declines during the notification month and the month after, and a return to small decreases two months after notification. In the six-month period before the notification, the percentage of beneficiaries engaging in SGA declined by an average of 0.8 percentage points each month. Recall that we excluded beneficiaries who self-reported their earnings from our analytic sample and assume that beneficiaries in our sample were unaware of a pending overpayment debt. Accordingly, the pre-notification decline in SGA may be related to attrition from employment over time or reactions to other events.

We observe the largest declines in SGA in the months of and immediately after the notification of overpayment debt. During the month of notification, there was a 2.2 percentage point decline in the proportion engaging in SGA, followed by another 1.9 percentage point decline. The small declines in SGA in the months before notification suggest that a portion of the decline in the subsequent months would have occurred even in SSA had not sent a notification of overpayment debt. Although we cannot

precisely separate out this pre-notification trend from our estimates, the difference between the average monthly decline preceding the notification (0.8 percentage points) and the declines in the two months after notification is 1.4 and 1.1 percentage points, respectively.

In the remaining analysis months, the proportion of overpaid beneficiaries engaging in SGA declined less sharply, averaging 0.5 percentage points per month in the last four months of the analysis period.

## A. Subgroup Results

Table 2 shows the monthly decline in SGA in the six months before and after the notification of an overpayment debt, by subgroup. We defined the subgroups by education level at award, age, full SSDI benefit amount, receipt of SSI, impairment type, and whether the form indicating that SSA will be examining the beneficiary's work activity was received before or during the analysis window.

The declines in SGA in the months of and after the notification of overpayment debt were larger for beneficiaries with less than a high school education than for those with more education. The declines were also larger for beneficiaries ages 45 and above than for younger beneficiaries, and for beneficiaries with a full benefit amount of over $1,000 than for those with lower amounts. In addition, beneficiaries who had a primary impairment of back or other musculoskeletal disorders generally had larger percentage point declines in SGA in those months compared with beneficiaries who had other impairments. The smallest declines were among beneficiaries with intellectual disability (column 11).

The difference in the decline in SGA in the month of notification of overpayment debt was most stark for beneficiaries who were receiving SSI at the time of the SSDI award compared with those who received SSDI only (Columns 7 and 8). SSDI-only beneficiaries had statistically significant declines in SGA during the month that they received the notification and six months after. But those receiving SSI at the time of the SSDI award had smaller decreases (and some increases) in SGA that were statistically insignificant. .

Columns 16 and 17 of Table 2 show that the overpayment debt notification had different effects on beneficiaries who received the work activity report form before the analysis window compared with those who received it during the window. The latter group had large and persistent declines in SGA in the months of and after notification—compared to relatively muted declines among those who received the work report before the analysis window. There are several ways to interpret these results. On one hand, the results may suggest that beneficiaries reduced their SGA in response to both the work activity report form and the overpayment debt notification. For those who received the form during the analysis window, the impact of an overpayment debt notification on SGA may have been conflated with a notable and lingering response to the form. On the other hand, a long interval between initiating a case (proxied by the work activity report form) and completing a case (proxied by the overpayment debt notice) may mean that a beneficiary has a complex case and its possible that factors that make the case complex are related to the likelihood of continued SGA.

**Table 2a. Monthly regression-adjusted decline in overpaid beneficiaries engaging in SGA, by subgroup**

| | Less than high school education | High school or above education | Under age 45 | Age 45 and above | Full benefit amount <$1,000 | Full benefit amount ≥$1,000 | Receiving SSI at SSDI award | Not receiving SSI at SSDI award |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Month -5 | -0.9** | -0.5*** | -0.4** | -0.6*** | -0.6*** | -0.4** | -1.5* | -0.5*** |
| Month -4 | -1.3*** | -0.7*** | -0.8*** | -0.8*** | -0.9*** | -0.7*** | -2.2*** | -0.8*** |
| Month -3 | -1.3*** | -1.2*** | -1.0*** | -1.3*** | -1.1*** | -1.2*** | -0.8 | -1.2*** |
| Month -2 | -1.2*** | -0.9*** | -0.7*** | -1.2*** | -1.0*** | -0.8*** | -0.3 | -0.9*** |
| Month -1 | -0.9** | -0.3** | -0.5** | -1.7*** | -0.3 | -0.4*** | 0.5 | -0.4*** |
| **Month 0** | **-2.6*** ** | **-2.2*** ** | **-1.8*** ** | **-2.6*** ** | **-2.1*** ** | **-2.4*** ** | **-1.5** ** | **-2.3*** ** |
| **Month 1** | **-1.9*** ** | **-1.9*** ** | **-1.4*** ** | **-2.3*** ** | **-1.7*** ** | **-2.0*** ** | **-0.8** | **-1.9*** ** |
| Month 2 | -0.9*** | -1.0*** | -0.9*** | -1.1*** | -1.0*** | -0.9*** | -0.7 | -1.0*** |
| Month 3 | -0.7** | -0.6*** | -0.3** | -0.8*** | -0.5*** | -0.7*** | 0.1 | -0.6*** |
| Month 4 | -0.5 | -0.5*** | -0.6*** | -0.5*** | -0.4** | -0.6*** | 0.1 | -0.5*** |
| Month 5 | -0.8** | -0.5*** | -0.4** | -0.6*** | -0.5*** | -0.6*** | -0.7 | -0.5*** |
| Month 6 | -0.3 | -0.5*** | -0.3* | -0.6*** | -0.5*** | -0.4*** | -0.4 | -0.5*** |
| N | 13,157 | 100,597 | 51,275 | 62,479 | 49,988 | 63,766 | 2,998 | 110,756 |

**Table 2b. Monthly regression-adjusted decline in overpaid beneficiaries engaging in SGA, by subgroup**

| | Impairment: affective disorder | Impairment: other psychiatric disorder | Impairment: intellectual disability | Impairment: sensory impairment | Impairment: back disorder | Impairment: other musculo-skeletal disorder | Impairment: other physical impairment | Work activity report received before analysis period | Work activity report received during analysis period |
|---|---|---|---|---|---|---|---|---|---|
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) |
| Month -5 | -0.2 | -0.3 | -0.2 | -0.2 | -1.2*** | -0.3 | -0.7*** | -1.4*** | -0.1 |
| Month -4 | -0.8** | -0.8** | -1.1* | -0.9 | -0.7 | -0.7 | -0.8*** | -1.3*** | -0.7*** |
| Month -3 | -1.4*** | -0.9*** | -1.4** | -0.3 | -1.1 | -1.9*** | -1.1*** | -1.2*** | -1.6*** |
| Month -2 | -1.0*** | -0.9*** | -0.8 | -0.9* | -1.0*** | -1.0** | -0.8*** | -0.7*** | -1.6*** |
| Month -1 | -0.4 | -0.1 | 0.0 | 0.0 | -0.4 | -0.5 | -0.7*** | 0.3** | -1.7*** |
| **Month 0** | **-2.1*** ** | **-1.9*** ** | **-1.8*** ** | **-2.2*** ** | **-2.7*** ** | **-2.8*** ** | **-2.2*** ** | **-1.8*** ** | **-3.0*** ** |
| **Month 1** | **-1.7*** ** | **-1.7*** ** | **-1.5*** ** | **-1.4*** ** | **-2.3*** ** | **-2.7*** ** | **-1.8*** ** | **-1.3*** ** | **-2.5*** ** |
| Month 2 | -1.0*** | -1.1*** | -1.4*** | -1.1** | -1.1*** | -0.8** | -0.8*** | -0.7*** | -1.3*** |
| Month 3 | -0.6** | -0.7** | -0.6 | -0.0 | -0.6** | -0.8** | -0.6*** | -0.3** | -0.9*** |
| Month 4 | -0.5** | -0.9*** | -0.1 | -0.2 | -0.3 | -0.5 | -0.6*** | -0.4*** | -0.6*** |
| Month 5 | -0.4 | -0.4 | -0.5 | -0.8* | -0.6** | -0.7* | -0.6*** | -0.3** | -0.8*** |
| Month 6 | -0.7*** | -0.6* | -0.1 | 0.2 | -0.6* | -0.4 | -0.4** | -0.4** | -0.6*** |
| N | 21,489 | 15,584 | 6,064 | 5,542 | 13,269 | 10,932 | 40,824 | 54,523 | 59,003 |

Source: Data from ROAR System; DAF, 2007–2014; and eWork.

Note: The estimates in the table indicate the percentage point change in SGA from the previous month. Fifty observations were missing data on primary impairment, and 228 observations were missing data on the timing of the work activity report form. The months in bold are the month of the overpayment notification and the month immediately after the notification.

*/**/*** indicates the statistical significance of the difference in SGA from the previous month at the 10/5/1 percent level.

## B. Sensitivity Checks

Table 3 shows the results of the first two sensitivity checks described in the methods section. First, we reduced the analysis window from six to three months before and after the overpayment debt notification in an attempt to lower the number of observations excluded due to missing data on SGA status. This decreased the number of analysis months (for which observations needed SGA data) from 13 to seven and increased the number of beneficiaries included in the analysis from 113,754 to 116,565. We had hypothesized that the sample exclusions might lead to overestimations in our results, but we did not find any evidence to support this. Rather, we found similar decreases in SGA in the main specification compared with the shorter analysis period.

**Table 3. Sensitivity checks for the predicted monthly change in SGA due to overpayment notifications**

| | Main specification | Shorter analysis period | Exclusion of reduced overpayments |
|---|---|---|---|
| Month -5 | -0.5*** | | -0.2 |
| Month -4 | -0.8*** | | -0.6*** |
| Month -3 | -1.2*** | | -1.2*** |
| Month -2 | -0.9*** | -0.9*** | -0.8*** |
| Month -1 | -0.4*** | -0.4*** | 0.3 |
| **Month 0** | **-2.2*** ** | **-2.3*** ** | **-2.0** |
| **Month 1** | **-1.9*** ** | **-1.9*** ** | **-2.7*** ** |
| Month 2 | -1.0*** | -1.0*** | -1.1*** |
| Month 3 | -0.6*** | -0.6*** | -0.8*** |
| Month 4 | -0.5*** | | -0.5*** |
| Month 5 | -0.5*** | | -0.5*** |
| Month 6 | -0.5*** | | -0.7*** |
| N | 113,754 | 116,565 | 44,254 |

Source: Data from ROAR System; DAF, 2007–2014; and eWork.

Note: The estimates in the table indicate the percentage point change in SGA from the previous month. The months in bold are the month of the overpayment notification and the month immediately following the notification.

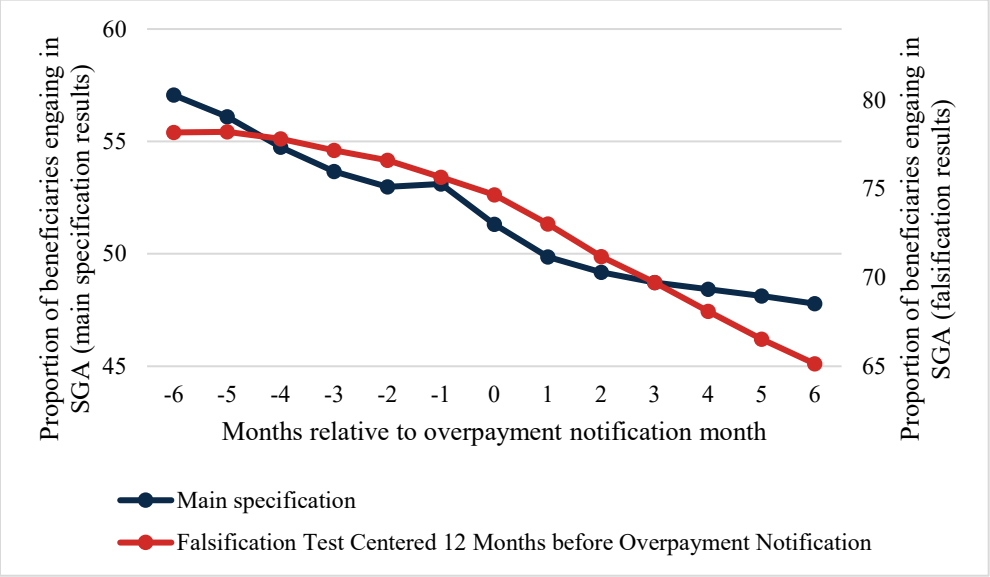
*/**/*** indicates the statistical significance of the difference in SGA from the previous month at the 10/5/1 percent level.

Second, we excluded beneficiaries whose overpayment debts were eventually canceled or reduced. Previous research shows that as much as 27 percent of overpayment debt from a given year was waived or cancelled (SSA OIG, 2015). Most of our analysis sample—61 percent—had their overpayment debt reduced in some way, suggesting that waivers and cancellations were spread across beneficiaries, presumably reducing the debt for many beneficiaries rather than eliminating it. Among those who had no overpayment reduction, SGA declines were smaller and statistically insignificant during the month of notification relative to declines for the full sample, and the SGA declines occurred slightly later. Nonetheless, the declines in SGA were qualitatively similar for both samples. This could suggest that ultimate responsibility for repaying these debts, which cannot be known at the time of notification, has at

most a minimal effect on engagement in SGA immediately after notification or that those who are most likely to successfully appeal overpayments have a similar propensity to reduce earnings after holding other observable factors constant.

Figures 2 and 3 present results from two falsification tests. Because the analysis periods for the falsification tests occur before the analysis period of the main specification, the proportion engaging in SGA is notably higher in the falsification test periods. We address this by presenting results on dual-axis graphs and scaling the axis for the graphs so that the main and falsification tests intersect in month -1. This allows for a clear comparison of changes relative to month -1. Figure 2 shows values from the main specification, in which month 0 corresponds to the true date of overpayment notification, alongside results from a regression in which month 0 corresponds to a false date of overpayment notification 12 months before the true date. For both specifications, we included only the 79,691 observations that have data on SGA status in all months for both analyses (that is, the intersection of the two samples). Figure 3 shows predicted values for the main specification alongside results from a regression in which we assigned false overpayment notification dates four months before SSA began the work continuing disability review. The sample size for both specifications in Figure 3 is 88,289.

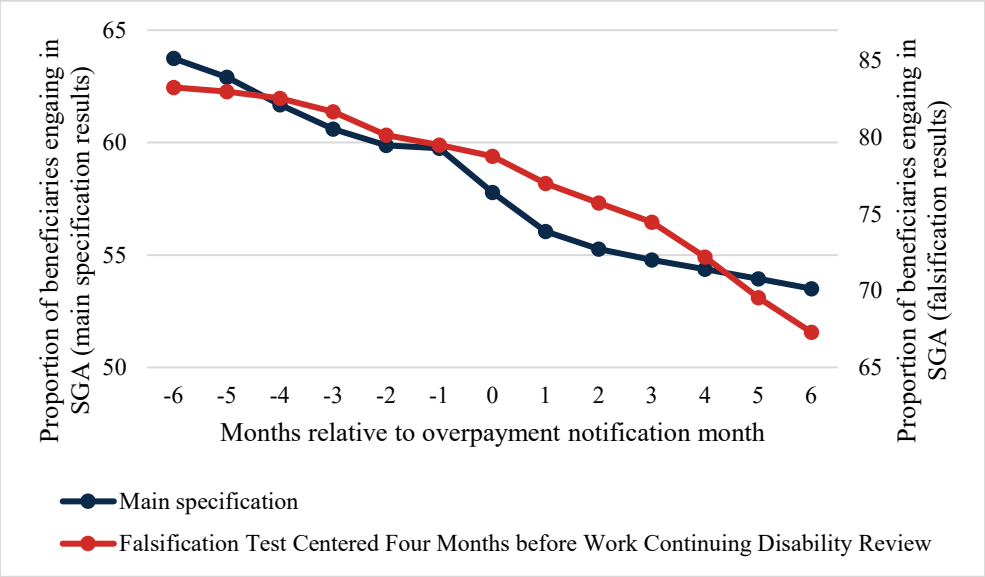
**Figure 2. Falsification Test Centered 12 Months before Overpayment Notification**




Source: Data from ROAR System; DAF, 2007–2014; and eWork.

Note: The line graphs are centered around the proportion of the subsample (n=79,691) engaging in SGA in month -1: 53 percent in the main specification and 75 percent in the falsification sample.

**Figure 3. Falsification Test Centered Four Months before Work Continuing Disability Review**




Source: Data from ROAR System; DAF, 2007–2014; and eWork.

Note: The line graphs are centered around the proportion of the subsample (n=88,289) engaging in SGA in month -1: 60 percent in the main specification and 79 percent in the falsification sample.

Both falsification tests suggest that our results reflect the true impact of the overpayment notification—that they are not spurious or driven by functional form. Both sets of results for the main specifications with the restricted samples (with the information on SGA needed for the respective falsification tests) are similar to the results for the full sample presented in Figure 1 and show the largest declines in SGA in the month of and month after notification (months 0 and 1). The falsification results, however, show different patterns. In Figure 2, we see gradual declines in SGA at the period beginning in month 6 (18 months before overpayment notification) that accelerate throughout the analysis period. In Figure 3, we observe sporadic declines in SGA until about month 4 (when beneficiaries receive a work activity report form), when there is a notable decline in SGA. The decline in SGA in month 0 is roughly two to three times as large in the main specifications compared with the falsification specifications: 1.8 percentage points versus 1.0 percentage points (3.4 percent versus 1.3 percent of the proportion engaging in SGA in month -1)) in Figure 2 and 2.0 percentage points versus 0.7 percentage points (3.3 percent versus 0.9 percent of the proportion engaging in SGA in month -1) in Figure 3. We interpret this as evidence that the sudden decline in SGA in month 0 is unique and reflects a response to the overpayment debt notification.

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# V. Discussion

This analysis is the first to provide quantitative evidence on the effects of a notification of overpayment debt on beneficiary employment. We found a sharp decline in SGA—by 2.2 percentage points—during the month of overpayment debt notification, followed by a 1.9 percentage point decline in the month after notification. These decreases are much larger than the average decline of 0.8 percentage points in the months leading up to the notification and roughly 0.5 percentage points in the third through sixth months after notification.

Beneficiaries may stop their SGA after receiving a notice of overpayment debt to reduce the likelihood of future overpayments. According to qualitative research, some beneficiaries are afraid that continued SGA will lead to additional overpayment debt, and some question SSA's ability to pay them accurately while they are engaging in SGA (O'Day et al., 2016; Hoffman et al., 2017; Kregel, 2018). Our findings are particularly salient because most beneficiaries who engage in SGA after the trial work period and grace period—71 percent by one estimate—are overpaid (Hoffman et al., 2019).

These estimates provide evidence that an unexpected notice about a work-related overpayment debt might act as a work disincentive, albeit a relatively small one. Indeed, we observe a 40-percentage point drop in the proportion of our sample engaging in SGA by the start of our analysis period that may occur for a multitude of reasons that are not related to being notified of a work-related overpayment. Nonetheless, it is important for SSA to understand the full array of factors that discourage work among SSDI beneficiaries in order to strengthen this population's engagement in the labor force.

The results also indicate heterogeneity in beneficiaries' responses. Engagement in SGA was particularly sensitive to overpayment debt notification among beneficiaries who had less than a high school education; were older than 45; received benefits of over $1,000; did not receive SSI benefits at the time of SSDI award; and had back or other musculoskeletal conditions as their primary impairment. It is unclear why we see these subgroup results, particularly because those who are most sensitive to overpayment debt notices belong to both more and less vulnerable groups.

## A. Limitations

Our analysis sought to estimate the effects of a notification about a work-related overpayment debt on subsequent SGA among beneficiaries who were overpaid between 2007 and 2014. However, there are some potential sources of bias that we are not able to address fully in our analyses. For example, we attempted to exclude beneficiaries who self-reported their earnings, but it is likely that our sample still included some beneficiaries who anticipated receiving notification of an overpayment debt, perhaps from the cessation notice that comes before the notification of overpayment debt or from someone knowledgeable about SSDI rules, such as a work incentives counselor. If these beneficiaries anticipated overpayment debt and adjusted their work effort accordingly, we expect that the estimated impact on earnings would be muted relative to what it would be if these beneficiaries were excluded.

Another potential source of bias is the pre-notification declines in SGA we detected in our analyses, which suggests that our results could overestimate the true effect of an overpayment debt notification. In addition, our results exclude 16 percent of the sample of beneficiaries who otherwise met the selection criteria but for whom information on SGA was unavailable in one or more analysis months. We hypothesized that this exclusion might also lead to an overestimation of the results, but found no evidence of this in a sensitivity test. Because the potential sources of bias that we have identified work in opposing

directions, we cannot say whether the overall impact on our estimates is a positive or negative bias or whether they cancel each other out.

It is also important to note that our results could be conflated with factors not captured in our analysis. In our main specification, we included controls for observed and unobserved time-invariant beneficiary characteristics, along with explicit controls for receipt of two other SSA notifications and the state unemployment rate. However, other factors not captured in this analysis could affect beneficiary engagement in SGA. For example, previous beneficiary exposure to work continuing disability reviews that do not result in cessation are not captured, and this could affect a beneficiary's earning trajectory.

Finally, we did not estimate the extent to which the size of the overpayment debt affects a beneficiary's decision to work above the SGA level after he or she receives the overpayment debt notification. Being notified about a larger overpayment—and thus a larger debt to repay— could prompt a bigger reaction than being notified about a smaller overpayment. But examining beneficiaries' responses to a notification of a large versus small overpayment is likely to present endogeneity issues because people who have large overpayments are also more likely to engage in SGA, regardless of receipt of a notification. A potential area for future research would be to identify a source of exogenous variation in overpayment amounts that would allow for this type of analysis.

## B. Conclusion

SSA recognizes that returning to work can enhance the well-being of SSDI beneficiaries as well as generate savings for the SSDI program. As a result, SSA has instituted policies, programs, and demonstrations designed to encourage work. These include the ability to earn up to SGA and a one-year period to attempt work with earnings above SGA without affecting SSDI benefits or eligibility, financial incentives for employment service providers to help beneficiaries achieve their employment goals, and funding for counselors to educate beneficiaries about SSDI's complex work-related rules. But SSA policies regarding work, communication of those policies, beneficiary inaction, and administrative complexity sometimes lead to an undesirable byproduct: work-related overpayments.

Evidence that notification of overpayment debt can discourage work adds to SSA's impetus to develop policies and procedures to curtail overpayments. Overpayments can also create economic hardship for beneficiaries, pose administrative and fiscal challenges for SSDI, and erode the public's trust in SSA programs. SSA has launched several initiatives to reduce overpayments through more efficient processes and technological advancements (see Hoffman et al. 2020 for a summary), although the causal impact of these initiatives on overpayments has not been studied. A recent SSA field experiment, however, demonstrates a promising strategy for reducing overpayments: Zhang et al. (2020) found that earning reporting reminders sent to SSI beneficiaries accelerated beneficiary earnings reporting and lowered the incidence of overpayments. It is, however, unclear, if this approach would yield the same results for SSDI beneficiaries.

Our findings could also have implications for other government programs that are subject to overpayments arising from participant work activity. For example, veterans who receive an income-based pension could encounter overpayments. Another example is the EITC, which provides a tax credit to low-income working families, has an overpayment rate that may be as high as 26 percent (Greenstein, Wancheck, & Marr, 2019).

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