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**Work Activity and Use of
Employment Supports
Under the Original Ticket
to Work Regulations**

**Longitudinal Statistics for
New Social Security
Disability Insurance
Beneficiaries**

Final Report

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ACRONYMS

AWI	Average Wage Index
BOND	Benefits Offset National Demonstration
BPAO	Benefits Planning Assistance and Outreach
CDR	Continuing Disability Review
DAC	Disabled Adult Child
DCF	Disability Control File
DI	Social Security Disability Insurance (under Title II of the Social Security Act)
DWB	Disabled Widow/Widower
ED	U.S. Department of Education
EN	Employment Network
EPE	Extended Period of Eligibility
FRA	Full Retirement Age
IRS	Internal Revenue Service
MEF	Master Earnings File
RSA	Rehabilitation Services Administration
SGA	Substantial Gainful Activity
SSA	Social Security Administration
SSDI	Social Security Disability Insurance (under Title II of the Social Security Act)
SSI	Supplemental Security Income (Title XVI of the Social Security Act)
SVRA	State Vocational Rehabilitation Agency
TRF	Ticket Research File
TTW	Ticket to Work

TWP	Trial Work Period
VR	Vocational Rehabilitation
WIPA	Work Incentives Planning and Assistance

ABSTRACT

This paper presents the findings from a longitudinal examination regarding the extent to which new Social Security Disability Insurance (DI) beneficiaries return to work and use DI work incentives, based on Social Security Administration (SSA) data. We focus on those who began receiving DI benefits in 1996 and follow them for the next 10 years. We also compare the experiences of more recent annual DI cohorts (1997 through 2005), to the extent observed. Because the period of our analysis precedes SSA's implementation of the new Ticket to Work (TTW) regulations (instituted July 2008), the paper reflects experiences under the original TTW rules, as well as prior to TTW.

Most commonly cited statistics on work-related activities are cross-sectional and based on all beneficiaries *in any given year*. *Longitudinal* statistics follow a group of beneficiaries over a sustained period and, as shown in this paper, paint a somewhat more positive picture of DI beneficiaries' return-to-work efforts. For instance, although less than half a percent of all DI beneficiaries have their benefits terminated for work in any given year, by the 10th year after award, almost four percent of those in the 1996 award cohort had their benefits terminated for work at some point.

A large majority of those who returned to work did so within the first five years. Most completions of the trial work period (TWP) and first suspensions for work occurred during that period, too, while terminations for work lagged by about three years because of the extended period of eligibility. Most of those whose benefits were suspended or terminated for work did not enroll for services, while most of those who had enrolled did not have their benefits suspended or terminated for work.

Young beneficiaries were much more likely to work and eventually exit the program to work than older awardees: 46 percent of awardees under age 40 worked within the first 10 years and almost 10 percent had their benefits terminated for work; only 20 percent of those age 50–61 at award worked during the same period and just one percent had their benefits terminated for work.

The 10-year statistics also varied widely across states—fewer than 20 percent had been employed in some states and more than 40 percent in others, and the benefits of fewer than two percent were terminated for work in some states versus almost six percent in others.

The employment experiences of award cohorts are sensitive to business cycle and policy changes. The 2000 to 2002 cohorts experienced lower early employment than those in the 1996–1999 cohorts, apparently because of the 2000–2001 recession. They also experienced fewer months off the rolls for work, holding years since award constant. The 2001 increase in the TWP income amount reduced TWP completions and possibly reduced months off the

rolls for work. The 1999 substantial gainful activity (SGA) increase might also have reduced months off the rolls for work, but the effect is not evident in the statistics.

This is the seventh in a series of papers that make up the fifth TTW evaluation report.

I. INTRODUCTION

The Social Security Administration (SSA) administers two programs that provide income support to nearly 11 million working-age people with disabilities—the Social Security Disability Insurance (DI) program and the Supplemental Security Income (SSI) program. To qualify for either DI or SSI, an applicant must demonstrate that he or she is unable to work at substantial levels due to a long-term, medically determinable impairment. The passage of the Ticket to Work and Work Incentives Improvement Act of 1999 (Ticket Act) prompted numerous changes in these programs, which were intended to encourage and facilitate the return-to-work efforts of disability program participants. During the past nine years, SSA has instituted initiatives that (1) provide beneficiaries with information about how work affects their benefits, (2) offer them more options for accessing employment services, (3) allow them to return more easily to the disability rolls following unsuccessful work attempts, and (4) facilitate the processing of earnings information by SSA staff. The Ticket Act also established the Ticket to Work (TTW) program, which greatly expanded the types of organizations that SSA would pay to support beneficiaries' employment efforts.

This study uses administrative data to examine the extent to which beneficiaries work and eventually leave the DI rolls for work, from a longitudinal perspective; that is, we follow cohorts of DI awardees for many years after they enter the rolls. These statistics are quite different than frequently cited statistics on beneficiary employment and exit for work, which are cross-sectional in nature; that is, they consider the activities of all current beneficiaries in a short period (a month or year). A paragraph from the Ticket Act itself provides an important example:

“Despite such historic opportunities and the desire of millions of disability recipients to work and support themselves, fewer than one-half of one percent of Social Security Disability Insurance and Supplemental Security Income beneficiaries leave the disability rolls and return to work.” 42 USC 1320b-19, Section 2(a)(8)

Although no citation is provided, the one-half of one percent statistic in this paragraph apparently reflects a statistic that SSA publishes on an annual basis for DI beneficiaries: the percentage of beneficiaries whose benefits were terminated in the current year because they were working. For 2008, SSA (July 2009) reports that 37,711 DI worker beneficiaries had their benefits terminated because of work, which is equal to 0.5 percent of all worker

beneficiaries on the rolls in December 2008.¹ This percentage is a cross-sectional statistic: it measures the number of beneficiaries who leave the rolls in a short period (one year) relative to the number on the rolls at a point in that same period.

There is another important way to measure the extent to which beneficiaries exit for work, however: to follow those who receive their DI awards in a specified period over a much longer term and to measure the percentage whose benefits are eventually terminated for work. The only published statistics we have found using this methodology are based on a series of studies conducted by SSA for DI worker beneficiaries who entered the rolls between July 1980 and June 1990. The statistics from these studies confirm that termination for work is a relatively rare phenomenon, but not nearly as rare as the cross-section statistics might suggest. For instance, Muller (1992) reports that the benefits of 2.8 percent of these beneficiaries were terminated for work within the next 10 years.

The difference between Muller’s estimate and the figure cited in the Ticket Act does not simply reflect the difference in time periods. The fundamental reason for the difference is that the two statistics address different questions. The longitudinal statistic (2.8 percent) addresses what share of program entrants eventually exit for work. The cross-sectional statistic (0.5 percent) addresses what share of all beneficiaries exit for work in a year.

It is not surprising that the answers to these two questions are different, but perhaps the magnitude of the difference is. There are two important reasons for the difference in magnitude. The first, and most obvious, is that cross-sectional statistics consider activity during a relatively short period of time—only a month, or a year—whereas the longitudinal statistics capture activity over a sustained period. The latter can be substantially greater because intermittent medical and other issues might make sustained work over long periods problematic for many beneficiaries.

The second, less obvious reason for the difference in magnitude is that in any given year, the vast majority of those on the rolls—the “stock” of beneficiaries—are in two groups for which exit for work is exceptionally rare: those who have been on the rolls for less than four years, and those who have been on the rolls for many more than four years. The design of the DI work incentives essentially ensures that exit for work cannot occur until a beneficiary has been on the rolls for 45 months.² As for those who have been on the rolls much more than 45 months, the longer they stay on the rolls, the less likely they would exit for work next year. The beneficiaries most likely to exit for work—those who have been on the rolls longer than four years, but not so long that they’d already give up the idea of returning to work—represent a relatively small share of beneficiaries in any given year.

¹ Although the statement in the Ticket Act refers to both SSI and DI, SSA does not routinely publish statistics on the SSI terminations for work. We will examine employment and exit for work activity by SSI recipients in a later paper.

² Benefit termination for work cannot occur until the beneficiary has completed the nine-month trial work period (TWP) and 36 months of the subsequent extended period of eligibility (EPE).

Both cross-sectional and longitudinal statistics have value. There is considerable potential for confusion between the two, however. Further, because cross-sectional statistics are readily available, it might well be that they are interpreted as longitudinal statistics; for example some might believe that only 0.5 percent of DI entrants eventually will have their benefits terminated for work when the real percentage might be several times higher. A difference in that magnitude could have a substantial bearing on policy or other decisions, as we illustrate in the last chapter.

Despite their value, longitudinal statistics have rarely been produced. The most likely explanation is that they are difficult to produce. SSA's development of a major longitudinal research file for disability beneficiaries, based on administrative data, has made it practical to produce longitudinal statistics for the those beneficiaries who received their DI or SSI awards in each year from 1996 forward. This paper presents the first statistics for DI awardees. Specifically, we followed those who first received a DI award in 1996—the "1996 DI award cohort"—for the 10 years after their award year, and follow more recent annual award cohorts for shorter periods.

In Section II, we describe features of the DI program that are pertinent to understanding the statistics and also review the relevant findings from previous longitudinal studies. The data and methods used in this paper are described in Section III. In Section IV, we examine longitudinal statistics for the 1996 cohort and assess cross-state variations. We compare selected statistics for later cohorts in Section V, and assess the extent to which these statistics reflect two policy changes: the 1999 increase in the non-blind SGA amount and the 2001 increase in the TWP income amount. We summarize the findings and consider their implications in Section VI. Detailed tables appear in the appendix.

II. BACKGROUND

A. FROM DI ENTRY TO TERMINATION FOR WORK

Interpretation of longitudinal statistics on DI award cohorts requires an understanding of the DI eligibility rules, determination process, work incentive programs available to beneficiaries, and program changes that have occurred since 1996.

To qualify for DI benefits, an applicant must demonstrate that he or she is unable to engage in SGA due to a medically determinable impairment expected to last at least 12 months or to result in death. In 2009, SSA considers SGA to be the equivalent of the work required to have countable earnings above \$980 per month for most applicants.³ A major increase in non-blind SGA that occurred in 1999 (the fourth year of our 11-year study period) likely had an impact on some of the statistics presented in this paper. From January 1990 through June 1999, the value was fixed at \$500. In July 1999, the value was increased to \$700, and from January 2000 forward it was indexed to SSA's Average Wage Index (AWI).⁴

DI eligibility also depends on non-medical criteria. Most beneficiaries qualify as “workers” because they have had sufficient numbers of recent and lifetime quarters of Social Security-covered employment. Much smaller numbers qualify because they are disabled adult children or disabled widows of Social Security beneficiaries. The level of the DI benefit is based on past earnings—the higher the lifetime earnings of the beneficiary (or other relevant individual), the higher the benefit. Those with sufficiently low assets and income, including DI, are also eligible for an SSI payment. DI beneficiaries also qualify for Medicare coverage after a 24-month waiting period, and most who qualify for SSI also qualify for Medicaid.

Because application processing times can be lengthy, new DI beneficiaries often receive retroactive benefits when they first enter the program. That is, the month in which SSA completes an eligibility determination (award month) is usually after the first month for which the beneficiary is entitled to a benefit (entitlement month), often by a year or longer. In this study, we use the award month to determine the year of DI entry because our focus is

³ Impairment-related work expenses and wage subsidies can be used to offset earnings for purposes of determining SGA. The SGA level for those determined to be blind is higher, \$1,640 in 2009.

⁴ The SGA level for blind beneficiaries had been indexed to AWI since first established in 1975 but was only increased by the index amount in 1999.

on the activities of beneficiaries once they become informed of their award and are entitled to use the DI work incentives.⁵

The most important of the DI work incentives for the analysis of this paper are the TWP, the extended period of eligibility (EPE) and the Ticket to Work (TTW) program.⁶ The TWP consists of nine months during which beneficiaries are permitted to work and earn at any level without loss of benefits, provided that they continue to meet medical eligibility requirements. The nine months need not be consecutive—any nine months in a 60-month rolling window are counted. In 2008, a beneficiary was considered to be in a TWP month if he or she had monthly earnings of at least \$670 (TWP income) or was working at least 80 self-employed hours. From 1990 to 2000, the TWP income amount was \$200. The amount was increased to \$530 in 2001, and indexed to AWI thereafter; months in which earnings were above \$200 but below the new value no longer counted as TWP months.

The month after the last TWP month is automatically the first month of the beneficiary's EPE. During the first 36 EPE months, benefits are suspended if countable earnings are above SGA (i.e., no benefits will be paid), except that each beneficiary has three months of grace period, in which benefits are continued despite earnings above SGA. The beneficiary is also entitled to receive full benefits in any month when earnings are below SGA, provided that the beneficiary continues to meet the medical eligibility criteria. If benefits are suspended because of earnings above SGA in the last of the 36 months, benefits are terminated, and the now former beneficiary must reapply to obtain benefits again. If benefits are not suspended in month 36, the beneficiary remains on the rolls until earnings exceed SGA in enough months to use up any of the grace period months that remain (no more than three). For those with no grace period months remaining, a single month of earnings above SGA results in benefit termination.

DI beneficiaries are also eligible to enroll for employment services that SSA will pay for, provided that the beneficiary achieves sufficient earnings over a specified period. TTW, which was implemented over three years starting in 2002, is the current version of this work incentive program. At award, the beneficiary receives a "Ticket" that he or she may present to any employment network (EN) to obtain services. ENs include all state vocational rehabilitation agencies (SVRAs) and other private and public entities that meet criteria set by SSA and that have agreed to accept tickets.

⁵ In contrast, SSA's statistics use entitlement month to classify beneficiaries by entry year (e.g., Annual Statistical Report on the Social Security Disability Insurance Program).

⁶ There are other DI work incentive programs (e.g., impairment-related work expenses) that do not play a prominent role in this analysis and therefore are not described. See *Social Security 2009 Red Book*, "A Summary Guide to Employment Support for Individuals with Disabilities Under The Social Security Disability Insurance And Supplemental Security Income Programs" for more detail. In addition, other federal and state agencies also implemented or strengthened programs designed to help disability beneficiaries and potential beneficiaries return to work or increase their earnings during the period examined. Most notably, many states introduced Medicaid Buy-In programs, which allow workers with disabilities (including DI beneficiaries) to enroll in Medicaid for a sliding-scale premium, and many states' One Stop Employment Centers introduced Disability Program Navigators and took other steps to help job seekers with disabilities take advantage of their services.

II. Background

As TWP was rolled out, SSA took additional steps to help beneficiaries understand and take advantage of program work incentives. Most important, perhaps, SSA made grants to local organizations to provide beneficiaries with counseling on work incentives, first under the Benefits Planning, Assistance, and Outreach (BPAO) program, then under the Work Incentive Planning and Assistance (WIPA) program.

Reflecting availability of the work incentives described above, several markers of a beneficiary's progress from benefit award month to the month of benefit termination for work appear in the administrative data:

- Award month: Month during which the disability determination decision is made
- TWP completion month: ninth month of the TWP
- Service enrollment month: First month after the award month when the beneficiary enrolls for services with an SVRA (based on Rehabilitation Services Administration [RSA] data) or assigns a Ticket to an EN or SVRA (based on SSA data)
- First suspension month: First month in which benefits are suspended for work

In general, the path from entitlement month to termination for work month must pass the following markers in this order: award month, TWP completion month, and first suspension month.⁷ Termination for work can occur after the 36th EPE month with no suspension in the first 36 months. The service enrollment marker need not be passed at all (i.e., beneficiaries need not enroll for services) and if it is passed, it can be passed at any month along the way. Benefits might be terminated for other reasons at any point along the way—most commonly because of mortality or attainment of the full retirement age (when retirement benefits replace DI benefits), and less commonly because of medical recovery and other miscellaneous reasons.

It is important to recognize that beneficiaries might not know where they are along the path from entry to exit for work, for two reasons. First, they might be unaware, or only vaguely aware, of SSA's work incentives, or might not understand the rules. Second, even if they understand the rules, they might not know exactly what their current status is, because it is up to SSA to determine what the beneficiary's status is, and SSA's determinations might be substantially delayed. When SSA receives reports of work activity from the beneficiary or others, it normally conducts a work-related Continuing Disability Review (work CDR), to determine the status of the beneficiary with respect to use of the work incentives. The earnings report that triggers the work CDR might not be timely—beneficiaries do not always report substantial earnings, even though required, and often SSA only learns of earnings increases through later analysis of IRS earnings reports. In addition, work CDR backlogs

⁷ There is one exception: benefits would not be suspended if the first month with earnings above SGA (following the grace period) occurs 36th month after TWP completion or later.

were high in the early part of the observation period because SSA focused its administrative resources on reducing the considerable backlog of benefit applications.

B. FINDINGS FROM NEW BENEFICIARY SURVEY AND NEW BENEFICIARY FOLLOW UP

SSA's New Beneficiary Survey and New Beneficiary Follow up have been used to produce longitudinal statistics for DI beneficiaries in the past. The original New Beneficiary Survey sample and the supplemental New Beneficiary Follow up sample were drawn from all Social Security beneficiaries (including those claiming on the basis of age or survivorship) who were initially entitled for benefits between July of 1980 and June of 1981. Below, we briefly summarize reported results most pertinent to our own analysis.

Schechter (1997) estimated that 22 percent of this cohort was employed in the 10 years following entitlement. Muller (1992) produced statistics on TWP completion and employment for the New Beneficiary Survey cohort over a shorter period (the length is unclear), excluding data from the supplementary sample available in the New Beneficiary Follow up. He found that 10.2 percent had worked after entitlement, 6.1 percent had already completed a TWP, and 2.8 percent had their benefits terminated for work. He also estimated econometric models that used demographic characteristics to predict outcomes. Among other things, he found a very strong relationship between age and outcomes. His point estimate for work by those under 40 at entitlement is 29.1 percent, compared to 12.4 percent for those age 40 to 49 and 4.8 percent for those age 50 to 59; corresponding point estimates for termination for work were 9.3 percent, 3.0 percent and 1.1 percent, respectively.

Hennessey and Muller (1994) examined the use of vocational rehabilitation (VR) services by New Beneficiary Survey/New Beneficiary Follow up respondents. They estimate that 27.0 percent received at least one VR service over approximately 10 years.

Numerous methodological differences between earlier studies and the analyses presented here make it difficult to compare the findings. The New Beneficiary Survey/New Beneficiary Follow up followed samples from a cohort of *disabled worker* beneficiaries who were first *entitled* to benefits in a one-year period; we have followed 100 percent of all disabled beneficiaries (including the small share who are non-workers) in cohorts who received their awards in each of several calendar years through administrative data alone. Two specific differences in the measurement of outcomes are particularly problematic. While the earlier studies used a combination of information from administrative records, folder reviews, and survey responses to determine employment, we had to rely solely on administrative records. The earlier studies also relied on survey responses to determine use of employment services (including those not potentially eligible for SSA financing), whereas our analysis relied on administrative records of enrollment for services that were potentially eligible for SSA financing.

There is also one notable programmatic difference that applied to this cohort until approximately eight years after their entry: in 1988, the post-TWP-completion period, during which benefits were suspended because of countable earnings above SGA, was increased from 15 months to 36 months.

III. DATA SOURCES AND METHODS

A. TICKET RESEARCH FILE AND OTHER MATCHED DATA

Most of the statistics presented here were developed from analytic administrative data files constructed for the TTW evaluation. These files, collectively called the Ticket Research File (TRF), contain extensive information on the more than 20 million DI or SSI beneficiaries in any month from January 1996 through December 2007 (Page et al. 2009).⁸

The analysis reported here also required access to SSA's Master Earnings File (MEF), which includes annual earnings data derived from tax reports under rules established by the Internal Revenue Service. SSA maintains an extract of DI and SSI beneficiaries' earnings records represented in the TRF. To comply with security requirements for the earnings data, SSA staff produced the statistics that are based on these records and verified that they do not disclose personal information.

To support the analysis for this study, we also used matched records of state VR service closures from the RSA-911 files for fiscal years 1998 through 2007, accessed under an interagency agreement between SSA and the Department of Education (ED). These records contain information on closed VR cases. For purpose of this analysis, we only included cases that were closed after eligibility for VR services was determined. The date of eligibility determination was used to establish the year of VR service entry. Because data were not available for fiscal years 1996 and 1997, we present service enrollment statistics only for the 1998 and later cohorts.

Although data are available through 2007, we end the analysis in 2006. Many of the 2007 values for SSA variables will be revised at a later date because of delays in reporting of earnings as well as processing time required for determining work incentive status. In addition, although we report 2006 service enrollment statistics, these are subject to substantial revisions because of the nature of the RSA-911 data: enrollment for a case is not captured in the file until the case is closed. Enrollment by a DI beneficiary in 2006 will only be recognized if the beneficiary's VR case closed before September 2007 or the beneficiary

⁸ Extracts from several SSA administrative files were merged to create the TRF, including the Disability Control File (DCF), Master Beneficiary Record, Supplemental Security Record, Numerical Identification System (Numident) file, and the 831 and 832/33 Disability files.

assigned his or her Ticket to the SVRA. Hence, we describe the enrollment estimates for 2006 as preliminary.⁹

All of the statistics presented here are based on 100 percent of the relevant DI population, including those receiving concurrent SSI benefits; that is, they are population statistics, rather than estimates.

B. CONSTRUCTION OF ANNUAL AWARD COHORTS

We begin the analysis by developing annual cohort files from 1996 through 2005 based on the month of a beneficiary's DI award—the month in which the beneficiary began receiving DI benefits for the first time according to the TRF. Although it is possible for an individual to have multiple entitlements, he or she is assigned to just one cohort based on the year that corresponds to the individual's *first* payment.¹⁰

The year of award is based on the month when SSA first made a DI benefit payment to the beneficiary (award month), which is always on or following the month in which the beneficiary was first entitled to a benefit (entitlement month). We determined the first payment month by finding the first month on the beneficiary's record in which a benefit was paid. One aspect of the TRF's construction, coupled with the sometimes lengthy period between entitlement month and award month, made it difficult to definitively identify the first award year for a small share of beneficiaries. Although the TRF covers beneficiaries in 1996 and later, its benefit data date back to January 1994. For those individuals whose initial entitlement month was before to that, we cannot be certain that the first month with a payment appearing in the TRF is the first award month. We developed a rule to address this issue, which is necessarily imperfect. No doubt we excluded some beneficiaries in each award cohort that should have been included and vice versa. Such errors are very small as a percentage of all beneficiaries in each award cohort, and there is no reason to think they have a material impact on the statistics. We were particularly concerned about impacts for the earliest cohorts, which have the largest percentage of ambiguous cases because of the nature of the ambiguity, but found that these results changed very little when we omitted all of the ambiguous cases.¹¹

⁹ Since RSA-911 data captures 90 percent of closures within five years of application, and the median time in the VR program before exiting is 465 days for those with employment and 667 days for those without employment (GAO 2005), service enrollment statistics for 2004 and 2005 may be underestimated too.

¹⁰ The first payment month is the month in which the first payment was actually made, as distinguished from the first month for which a payment was due, which is usually earlier.

¹¹ The rule was simple: we excluded each ambiguous case if the month of first entitlement was more than 144 months before the first observed payment. Application of this rule excluded 2 percent of all beneficiaries who would otherwise have been included in each cohort and ranged from 1.7 percent in the 1996 cohort to 2.4 percent in the 2005 cohort. Conversely, the cases that were included despite the ambiguity ranged from 10.8 percent of all beneficiaries who would have been included without the rule in 1996 to 0.1 percent in the 2005 cohort. Subsequent to completion of the reported analysis, we re-examined the excluded ambiguous cases to see if the long periods between first entitlement date and first observed payment was because the beneficiary was a Disabled Adult Child (DAC) or Disabled Widow/Widower (DWB), but the entitlement date was for the

Because we are mostly interested in return-to-work issues among working-age beneficiaries, we also excluded beneficiaries who had died before January 1, 1996; were under age 18 as of December 31, 2005; or were above full retirement age (FRA) as of the month of initial entitlement or January 1, 1996. Disabled widows/widowers and disabled adult children who otherwise meet the above criteria are treated the same as disabled workers in each cohort. Exhibit III.1 shows the size and age-sex composition of each cohort included in this analysis. Cohort size at the state level is provided in Appendix Exhibit A.1.

The number of first-time individuals receiving DI benefits varied relatively little from 1996 through 2000, ranging from almost 563,000 in 1997 to 598,000 in 2000.¹² The annual number rose rapidly after 2000, with an 11 percent increase in 2001, another 8 percent in 2002, and reaching more than 785,000 in 2005, the last cohort in our study. This pattern seems to have mirrored the recession between 2000 and 2003. The age-sex composition of cohorts gradually changes from 1996 through 2005. In particular, the percentage of female awardees increased from 44.2 percent in the 1996 cohort to 48.0 percent in 2005, presumably reflecting growth in the percent of women who meet DI earnings history requirements. As the baby boomers age, the percentage of awardees in the two youngest age groups gradually declined, while the percentage in the next two oldest age groups (50 to 61) increased from 44.6 percent in the 1996 cohort to 50.0 percent in 2005. The percentage in the oldest age group also increased slightly, perhaps attributable to the increase in the FRA for people born in 1938 or later.

C. WEIGHTING TO CONTROL FOR AGE-SEX COMPOSITION

The above changes in age-sex composition suggest that, even if return-to-work behavior does not change across cohorts, employment outcomes are likely to change simply because age and sex composition changes. In order to control for this demographic difference, all the statistics presented here are adjusted for age and sex using the 2001 cohort (the middle cohort and last year before T1W) as the index, unless otherwise noted.

(continued)

primary beneficiary. Although many were affected by this mismatch of information (and therefore perhaps should have been included in a study cohort), we found that most were not; the percentage of primary beneficiaries among those excluded ranged from 62.0 percent for the 1997 cohort to 70.2 percent for 2004. We also found that some of those included had a second entitlement date before the first payment observed and could have been excluded on the basis of that date—5.0 percent of the 65,203 ambiguous cases included in the 1996 cohort, and 39.3 percent of the 1,051 ambiguous cases included in the 2005 cohort. Primary/dependent status and second entitlement date could be used to refine the award cohorts based on the 2007 TRF, but analysis described in Chapter IV (see footnote 22) confirms that this would have no substantive impact on the findings for the 1996 cohort—the cohort most affected by the ambiguity of our current exclusionary rule. Adding adjudication information to future versions of the TRF could definitively address most, if not all, of these ambiguities.

¹² These statistics do not match SSA's published statistics exactly because they include only first awards, and possibly for other technical reasons. However, the trends in these statistics are quite similar to those for SSA's statistics. See, for example, SSA (July 2009).

Exhibit III.1 Annual DI Award Cohort Size and Age-Sex Composition, Percentages

Award Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total	591,493	562,998	578,504	590,023	597,925	665,135	719,109	747,777	762,234	785,405
Female	44.2	45.6	46.5	47.0	46.7	47.1	47.2	47.2	47.5	48.0
Male	55.8	54.4	53.5	53.0	53.3	52.9	52.8	52.8	52.5	52.0
Age 18-39	24.7	23.1	22.4	21.9	21.9	22.2	21.7	20.7	19.9	19.5
Female	42.4	44.6	45.6	46.3	46.5	46.8	47.2	47.6	47.8	48.0
Male	57.6	55.4	54.4	53.7	53.5	53.2	52.8	52.4	52.2	52.0
Age 40-49	23.6	23.2	23.6	23.6	22.8	22.6	22.6	22.4	22.0	22.0
Female	46.3	48.0	48.7	49.2	49.0	49.4	49.7	49.4	49.7	49.9
Male	53.7	52.0	51.3	50.8	51.0	50.6	50.3	50.6	50.3	50.1
Age 50-61	44.6	46.4	46.8	47.1	47.2	47.7	48.2	49.0	49.7	50.0
Female	45.3	46.1	47.1	47.6	47.2	47.2	47.1	47.0	47.3	48.1
Male	54.7	53.9	52.9	52.4	52.8	52.8	52.9	53.0	52.7	51.9
Age 62-FRA	6.8	7.0	7.0	7.1	7.7	7.5	7.5	7.8	8.3	8.4
Female	38.2	38.8	39.7	40.1	40.2	40.5	40.7	41.4	41.9	42.5
Male	61.8	61.2	60.3	59.9	59.8	59.5	59.3	58.6	58.1	57.5

Source: Authors' analysis of DI beneficiary records in the 2007 TRF, including those concurrently receiving SSI benefits.

Specifically, beneficiaries were divided into categories by sex and four age groups (18–39, 40–49, 50–61, 62–FRA), and each age-sex group was assigned a weight equal to the proportion of the 2001 national cohort it represents.¹³ Outcome measures were then developed for each age-sex group, and the aggregate statistics for the whole cohort presented here were weighted by the average of these group-specific measures. Similarly, we adjusted state series using the same weights, so that cross-state comparisons are not influenced by differences in age-sex composition. As a result, the statistics for different national or state cohorts reflect what we would expect to have occurred if a given cohort had the same age-sex distribution as the 2001 national cohort.

D. ANNUAL OUTCOME MEASURES

For each cohort, we developed a series of annual outcome measures based on the return-to-work progress markers discussed above. More specifically:

- TWP completion is identified when beneficiaries have logged 9 months of work (not necessarily consecutively) within a rolling 60-month window. The EPE starts automatically in the next month.
- Benefit suspension for work is identified when beneficiaries are earning above the SGA level during the first 36 EPE months.
- Benefit termination for work after 36 EPE months is based on the reported reason for termination. Benefits can be terminated for other reasons as well, such as medical recovery, reaching FRA, and death. If benefits were terminated for work, the beneficiary remains in “terminated for work” status in our analysis unless the beneficiary dies, attains the FRA, or returns to the rolls, in which case the beneficiary’s status is changed as appropriate.
- Beneficiaries are considered on the rolls during a year unless benefits are terminated for all 12 months during the year.
- Number of years off the rolls for work is a composite measure of the extent to which beneficiaries are not receiving benefits because they are working.¹⁴ It is defined as the total number of months during which benefits are either suspended or terminated for work, divided by 12. After the month of termination due to work, every additional month is counted until the month of death, FRA attainment or return to the rolls.
- Starting with the 1998 cohort, first-time service enrollment is identified when beneficiaries assign their Ticket to a provider (according to TRF) or are

¹³ The sex of the beneficiary was missing in a very small fraction of cases. We treated these cases as a third sex category, in addition to male and female.

¹⁴ Presumably benefits would have been paid during the months when a beneficiary was not earning more than SGA.

determined eligible for rehabilitation services (according to RSA-911 files), whichever occurs earlier.¹⁵ This variable only captures enrollment for services that will potentially be paid for by SSA.

- Employment is defined as having annual earnings of at least \$1,000 in 2007 dollars based on data from the MEF (inflation adjusted using AWI). For each cohort, we present employment statistics starting with the second full calendar year after the award year, so that those with carried-over earnings from pre-award jobs, but no subsequent earnings, are not included in the statistics.¹⁶ Depending on the analysis, mean earnings are calculated either for all beneficiaries (including those with zero earnings), or for those with positive earnings (including earnings less than \$1,000). The statistics fail to reflect the employment and earnings of those whose earnings are not reported to the IRS.¹⁷

The above measures were developed annually for each cohort following the award year. In addition to annual statistics for each year (for example, percentage of beneficiaries in the 1996 cohort who completed TWP for the first time *during* 2005), we also present cumulative statistics from award year through the current year (for example, percentage of beneficiaries in 1996 cohort having completed the TWP *by the end* of 2005; that is, an unduplicated count of individuals who first completed a TWP during the 10-year period). Annual statistics for each year show how outcomes change as the cohort ages. Cumulative statistics show the extent to which beneficiaries in the cohort have attained outcomes in the interval from award through the end of the current year. Cumulative statistics for the employment rate are an exception, however, because of the problem with distinguishing between pre-award and post-award earnings in the award year and the following year. Hence, the cumulative employment rate is for the period from the second year after award through the current year.

E. DATA LIMITATIONS

The administrative data used for this analysis has limitations, like most data of its kind, stemming from the fact that it is collected for administrative, rather than research, purposes. The statistics we report all have an important administrative purpose and are generally reliable, but are also subject to errors that reflect the processing of post-entitlement work. For instance, we found that a small share of records for some DI beneficiaries indicate suspension or termination for work even though there is no documentation of a completed

¹⁵ As noted in the previous section, the 2006 data for this variable should be considered preliminary because 2006 VR service entrants that did not assign their tickets and continued to receive services through the end of fiscal year 2007 will not have a record in the RSA-911 data file.

¹⁶ Muller (1992) notes that earnings reported to the IRS, the basis of our employment measure, can include those for work performed in a different year, such as delayed compensation, commissions, and vacation pay. It is for this reason that we did not include the first year after award in our employment and earnings statistics. Our annual estimates for later years likely reflect errors in the timing of work, but it seems much less likely that the cumulative statistics reflect such errors.

¹⁷ One potentially important example of earnings not captured in the IRS data is the earnings of beneficiaries who work in sheltered workshops, which are not subject to payroll taxes.

TWP. One possible explanation is that SSA conducted a work CDR and determined that the TWP had been completed only after the completion month was no longer material for administrative purposes (because benefits were already terminated). This might happen when the work CDR is triggered by SSA efforts to detect earnings above SGA through MEF data. It is also possible, however, that the information about suspension or termination in such cases is incorrect in some way; for example, suspension or termination might be for some reason other than work such as medical recovery.

If errors that reflect the processing of post-entitlement work occurred consistently over time, they would not affect trends in statistics across award cohorts. However, at least two factors might have contributed to possible reduction of such errors during our study period. First, the post-entitlement work backlog, and SSA's effort to address this, varied over this period. Early in the period, SSA's administrative effort was focused on initial determinations, and post-entitlement backlogs increased. The 2002 rollout of Ticket to Work was accompanied by a substantial effort to reduce post-entitlement backlogs, and SSA improved the processing of post-entitlement work through better use of information technology. The value of overpayments collected by SSA increased by 60 percent from 1999 to 2003.¹⁸ Hence, it is possible that some trends observed reflect changes in the processing of post-entitlement work rather than changes in policy or the economic environment. The size of any effect is potentially substantial because it appears that overpayments when a beneficiary returns to work are quite common. However, no statistics on trends in the number of overpayments or on when they are detected are available.¹⁹

The consequences of overpayments and trends in the processing of post-entitlement work for our statistics on months off the rolls for work are unclear. There are two types of possible consequences: measurement and behavioral. With respect to the former, it might be that beneficiaries were off the rolls for more months in the last year or two of our sample period (i.e., 2005 and 2006) than our estimates show because of delays in the processing of post-entitlement work. The data used were drawn in early 2008, so there may have been ample time for SSA to complete almost all post-entitlement work for both of these years. It is also possible that delays in processing post-entitlement work change the information available to SSA for determining engagement in SGA, which could result in a change in the

¹⁸GAO (2004) reports that SSA collected \$431 million in overpayments in 2003, compared with \$269 million in 1999. They also report that 31 percent of overpayments during this period were caused by return to work.

¹⁹ The percentage of those who experienced overpayments after leaving the rolls for work is not known but the following calculations suggest it is quite high. GAO (2004) estimated that there were \$990 million in overpayments detected in 2002. If 31 percent were caused by return to work, per GAO's estimate, the amount from this cause alone was \$307 million. If the average overpayment after return to work is \$10,000 (approximately a year's worth of benefits for the average SSDI beneficiary), this amount reflects overpayments for 31,000 beneficiaries. If the average overpayment is \$5,000, instead, then the number of beneficiaries with overpayments would be 62,000. Stapleton et al. (2010, Exhibit IV.1) estimate that 51,000 SSDI beneficiaries first left the rolls for work for at least one month in 2003. Not all overpayments detected in a year are for beneficiaries leaving the rolls in the same year. These calculations clearly suggest, however, that the percentage of beneficiaries who receive overpayments when they first leave the rolls for work is quite large.

number of months of suspension for work. We have no knowledge that this is the case, however.

It is also possible that delays in the processing of post-entitlement work have behavioral effects, in which case changes in the length of delays could have a behavioral impact on months off the rolls for work. For instance, some beneficiaries may be unaware that they are putting their benefits in jeopardy by completing the TWP and engaging in SGA. When they discover that their benefits are suspended retroactively, and they are required to repay SSA for overpayments, they might react by reducing their earnings so their benefits will be reinstated. If efforts to clear the backlog mean that such beneficiaries are informed about benefit suspensions more quickly, such beneficiaries would likely reduce their earnings and obtain benefit reinstatement sooner than they otherwise would.

Although changes in the processing of post-entitlement work during the sample period might have affected trends for some variables—especially months off the rolls for work—it is difficult to predict the direction and assess the magnitude. Extensive additional analysis of payment and other data would be necessary to understand the implications for the findings reported.

We begin our analysis of the 1996 award cohort by first documenting the different pathways that led beneficiaries to benefit termination. We then present a series of longitudinal statistics on employment, earnings, and use of work incentives for the entire cohort and by age groups, and compare key statistics across states. Analyses of the more recent award cohorts are presented in section V.

IV. 1996 DI AWARD COHORT

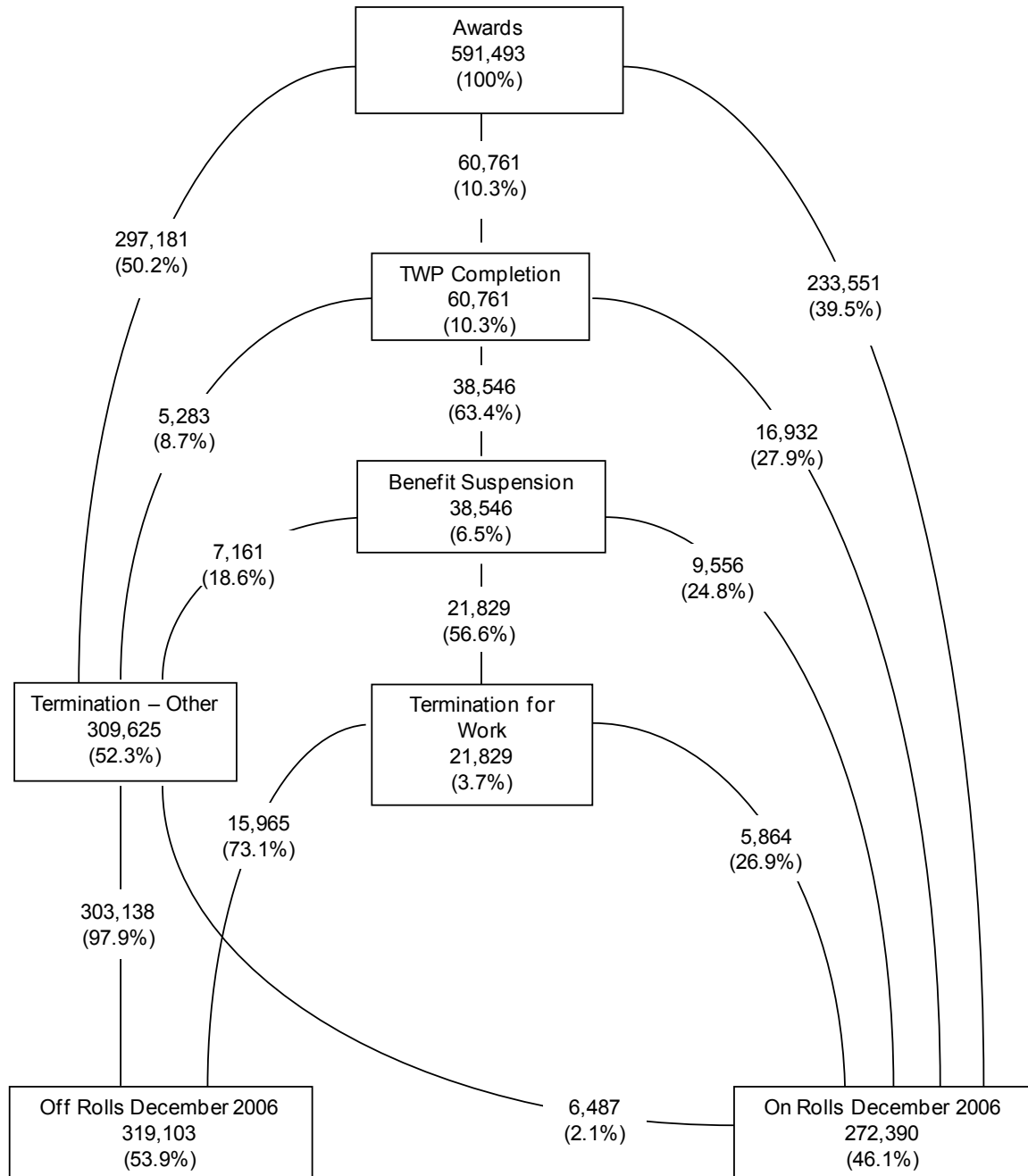
In this section, we focus on statistics for the 1996 award cohort. We first review the extent to which the cohort had traveled down the various paths toward exit for work as of 2006 and also consider the 2006 status of those who had previously exited. We then present longitudinal employment and work incentive statistics for the 1996 cohort, by age and for the entire (weighted) cohort. The section concludes with an examination of cross-state variation in cumulative employment and work incentive statistics for the cohort as of 2005.

A. PATHS TO BENEFIT TERMINATION FOR THE 1996 COHORT

Exhibit IV.1 shows the progression of moving off the rolls for the 1996 award cohort as a group.²⁰ Beneficiaries reaching the return-to-work markers and the percentage of total cohort members they represent are shown in the boxes. The routes through which beneficiaries get to each marker and how many choose the specific route from the previous marker are presented outside of the boxes. In addition to examining the first incidence of benefit termination, we also looked at where people were as of December 2006, the end of our study period.

We find that 46 percent of the 1996 awardees were on the rolls, including 40 percent that did not use any DI work incentives. Of the 54 percent who were no longer on the rolls, most (50 percent of the cohort) had exited for reasons other than work—attainment of FRA, death, or medical recovery. Over 10 percent made some progress toward exit for work by completing the TWP. A substantial majority of these (63 percent, or 6.5 percent of the cohort) went on to have their benefits suspended for work in at least one month and more than half of those eventually had their benefits terminated for work—3.7 percent of the

²⁰ Because of data limitations discussed previously, paths for some beneficiaries do not follow the appropriate order. For example, some individuals indicate suspension or termination for work even though there is no documentation of a completed TWP. We did some recoding (mostly on the TWP completion variable, affecting 1.7 percent of the records) in order to correctly identify the paths for each individual. Other analyses in the paper are based on the raw data and are not affected by this recoding and therefore may show slightly different statistics.

Exhibit IV.1 Paths to Benefit Termination for the 1996 Cohort as of December 2006


Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

cohort. A little over a quarter of those whose benefits were terminated for work returned to the rolls by December 2006, leaving 2.7 percent off the rolls because of work.²¹

Service enrollment is one return-to-work marker not captured in Exhibit IV.1. As noted previously, the 1998 cohort is the first cohort with complete service enrollment data. The next two exhibits divide service enrollment into different paths to exit for the 1998 cohort, one showing how individuals progress to benefit termination for work (Exhibit IV.2), and the other focusing on what happens before and after benefit suspension for work (Exhibit IV.3). As the statistics in these two exhibits show, a large majority of those whose benefits were suspended or terminated for work did not enroll for employment services, or at least did not do so with providers that would be eligible for payment from SSA. Approximately 80 percent of the nearly 22,000 individuals whose benefits were terminated for work did not enroll for services (Exhibit IV.2). Similarly, of the 38,546 beneficiaries whose benefits were suspended for at least a month for work, 84 percent had not enrolled for services before the first suspension occurred (Exhibit IV.3), although another five percent enrolled for services subsequent to benefit suspension.

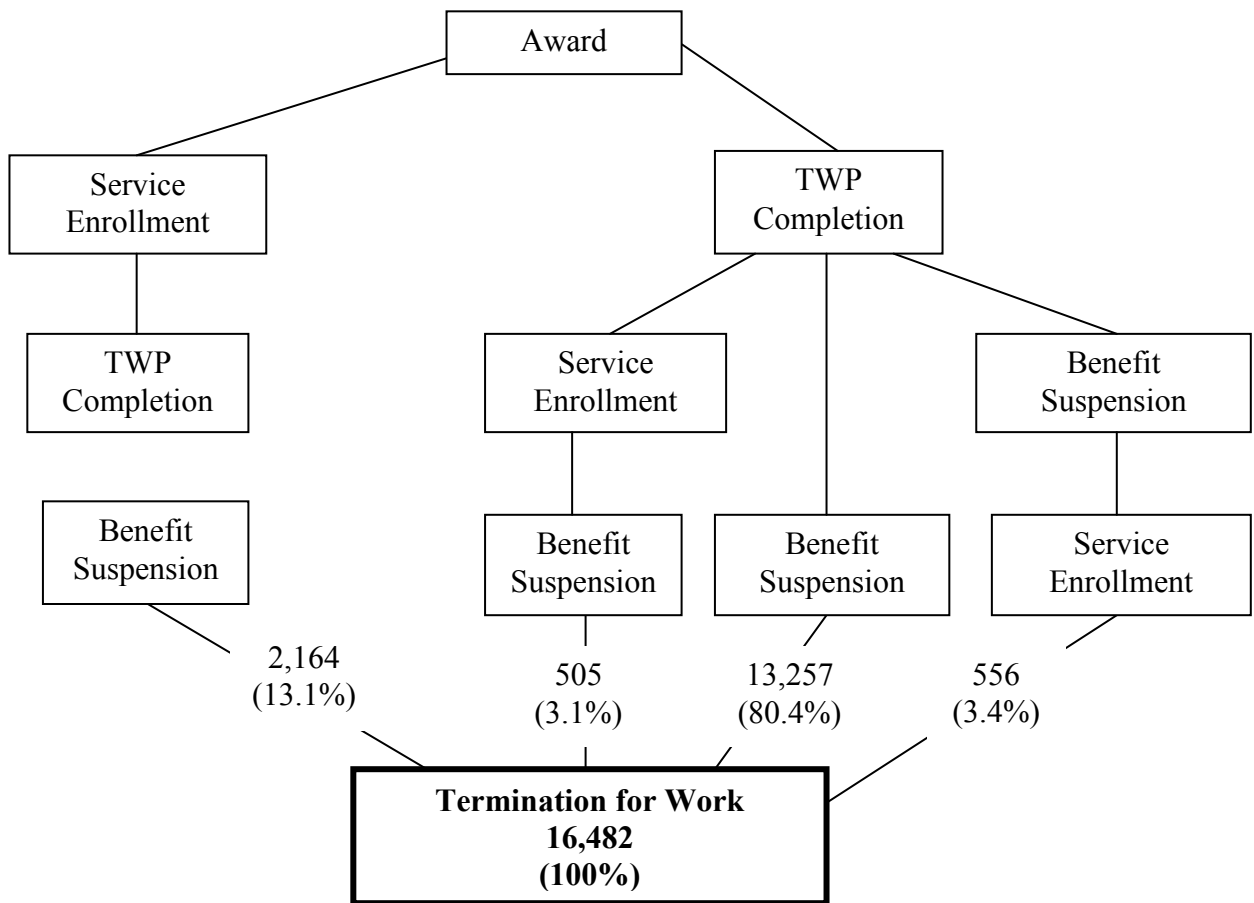
Although most beneficiaries who spent time off the rolls because of work did not enroll for services, service receipt could have been critical to exit for those who did enroll. We found that 38,327 beneficiaries (6.6 percent of the 1998 cohort) enrolled for services at some point during the first 10 years (Exhibit IV.4). By the end of eight years, almost exactly one third had completed TWP, 17.7 percent had experienced at least one month off the rolls for work, and 8.4 percent had their benefits terminated for work by the end of the period. These return-to-work statistics represent only a small minority of service users and some include achievements even before service enrollment. Nevertheless, they are well above the statistics for the 1998 award cohort as a whole (see Section V). It could be that services received were instrumental to the outcomes for those who did exit for work.

Appendix Exhibit A.2 provides details on 22 different pathways the 1998 cohort took towards exiting the rolls by the end of 2006. The exhibit also shows the average time (in months) it took to reach one marker after attainment of the previous marker. For example, the 33,352 awardees who enrolled in services first did so an average of 30 months after award. After service enrollment, 7,848 of these beneficiaries completed their TWP an average of 25 months later; of these, 4,592 experienced their first suspense for work an average of 7 months later; and of those 464 experienced termination for work an average of 20 months after benefit suspension. A beneficiary in this last group who spent the average number of months along each segment of this illustrative path would have had experienced termination for work 82 months, or seven years and ten months, after award. Presumably,

²¹ We repeated the analysis for Exhibit IV.1 after omitting all of the 65,203 ambiguous cases in the award cohort who possibly had received a payment prior to 1994 (see Chapter III). After omitting these cases, we found that 10.5 percent of those remaining had completed the TWP by December 2006, compared to 10.3 percent when they are included. The percentage whose benefits were suspended for work and the percentage whose benefits were terminated for work were identical to the results when this group is included to the first decimal place.

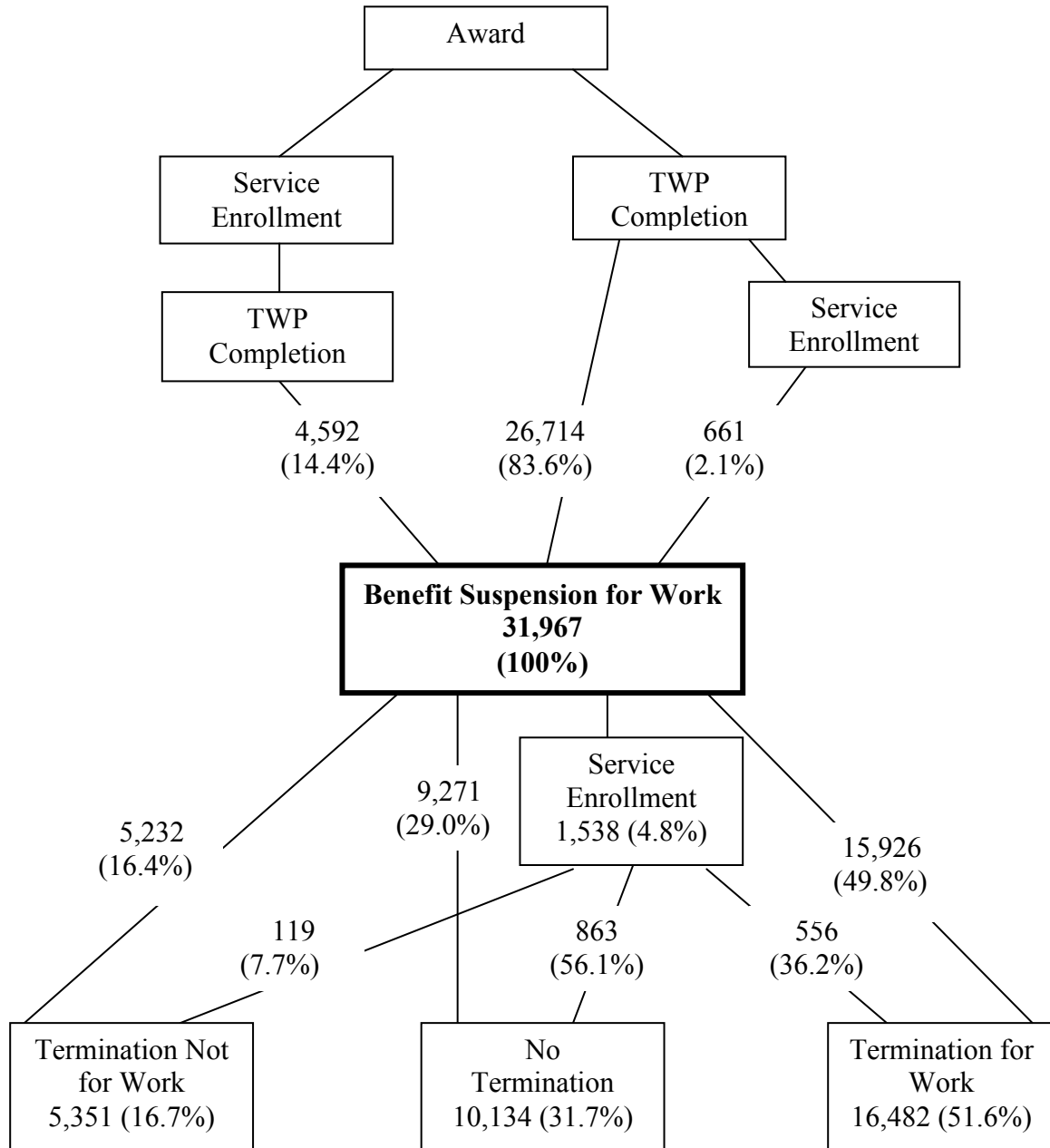
however, many of those who traveled the full length of the path during the observation period completed the first two segments (enrolled for services and completed their TWP) in below-average time.

Exhibit IV.2 Service Enrollment on Paths from Award to Termination for Work, 1998 Cohort



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to RSA-911 data.

Exhibit IV.3 Service Enrolment on Paths to Termination for Work for Beneficiaries with Benefits Suspended for Work, 1998 Cohort



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to RSA-911 data.

Exhibit IV.4. Suspension and Termination for Service Enrollees as of December 2006, 1998 Cohort

	Number	% of Service Enrollees
Service Enrollees	38,327	100.0
TWP Completed	12,823	33.5
After Service Enrollment	7,848	20.5
Before Service Enrollment	4,975	13.0
TWP Not Completed	25,504	66.5
Suspended for Work	6,791	17.7
After Service Enrollment	5,253	13.7
Before Service Enrollment	1,538	4.0
Never Suspended	31,536	82.3
Terminated for Work	3,225	8.4

Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to RSA-911 data.

B. LONGITUDINAL EMPLOYMENT AND WORK INCENTIVE SERIES FOR THE 1996 COHORT

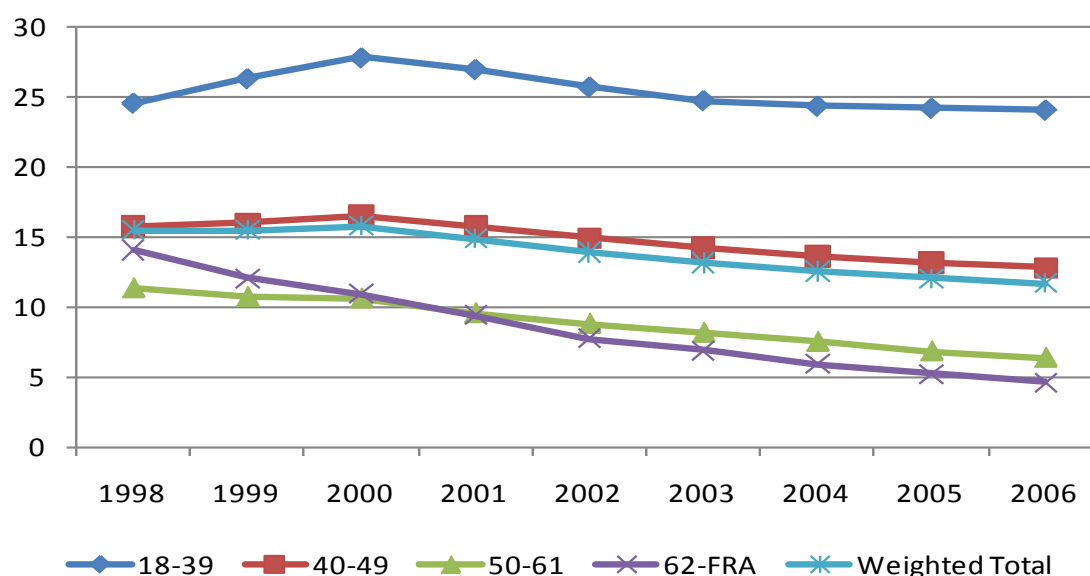
The statistics in the previous section provide a snapshot of the 1996 cohort 10 years later, and also provide some information about the paths they followed in between, but do little to illuminate the timing of their progress toward exit for work. We address this deficiency in this section by examining series of longitudinal statistics for the 1996 cohort that depict their progress by the end of each year. We also include for the first time statistics on employment and earnings. Some of the statistics presented refer to activities in the calendar year indicated, but many refer to cumulative activities from the award year through the end of the indicated calendar year.

Exhibit IV.5 compares percent employed in a given year for the whole weighted cohort and across four age groups. The fourth year since award (i.e., 2000 for the 1996 cohort) saw nearly 16 percent of cohort members employed, the highest percent in any given year. After that, the annual employment rate gradually decreased to 12 percent in 2006 as beneficiaries aged and accumulated more time on the rolls. Employment rates for the youngest group were well above those for all older groups, reaching as high as 28 percent in the second year after award. Employment rates for the youngest group rise from year two through year four, while those for the older groups remain roughly constant or decline somewhat. This might reflect differences in the characteristics of younger and older beneficiaries, such as impairments, benefit amounts, and assets. Many younger beneficiaries face the prospect of a long lifetime with very low income and might have stronger incentives to re-establish themselves in the labor force. Older beneficiaries, however, have a shorter work life remaining, even in the absence of disability. Perhaps younger beneficiaries are also more

successful in regaining function or adapting to their impairment than older workers. Even for this group, however, employment rates decline after the fourth year.²²

Many more beneficiaries work during at least one year than in any given year, as illustrated by the cumulative percent employed statistics in Exhibit IV.6. By 2006, 28 percent of the beneficiaries in the 1996 cohort had worked in at least one year since the second post-award year (some may be off the rolls later). Cumulative employment rates increase each year, indicating that beneficiaries not employed previously are becoming employed for the first time, but the rate of increase steadily diminishes. By the fifth year after award (2001), the weighted cumulative rate is 23.5 percent and it only increases by 4.5 percent points through the 10th year (2006). Not surprisingly, cumulative employment rates for the youngest group is much higher than for all older groups: 46 percent of the youngest group had worked in at least one year by 2006, compared to 29 percent, 20 percent, and 23 percent for those aged 40–49, 50–61 and 62–FRA at award, respectively.

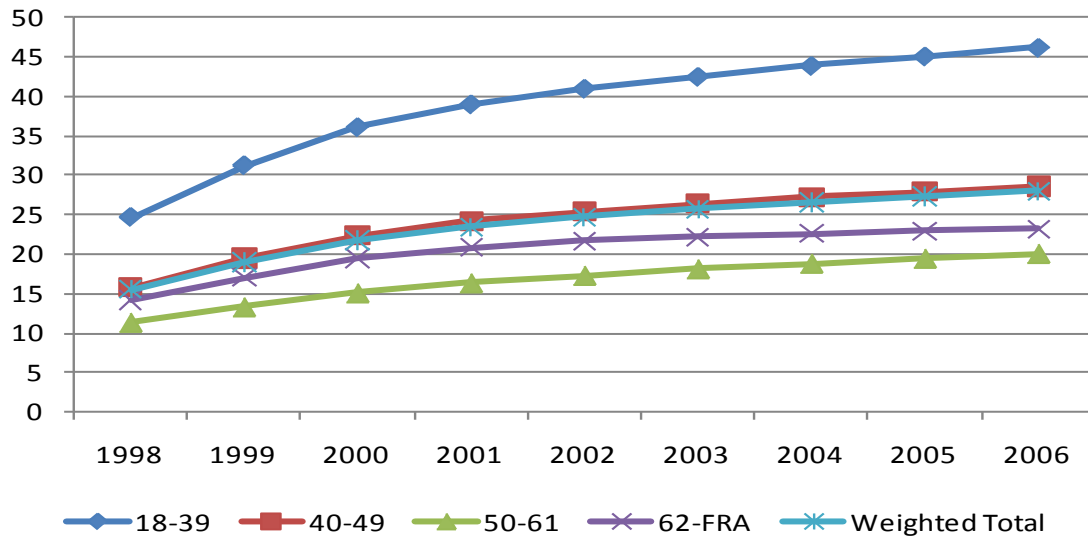
Exhibit IV.5. Annual Percentage Employed for the 1996 Cohort, by Age at Award, 1998–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

²² The employment rate for the oldest age group is initially higher than for the next oldest group, although it declines more rapidly and eventually falls below the rate for the next oldest group. This difference might reflect compositional differences between the oldest and next oldest group that are related to program eligibility criteria. At age 62, applicants can obtain early retirement benefits without demonstrating medical eligibility. The effect of early retirement eligibility on employment of new SSDI awardees at this age is unclear. On one hand, applicants with less severe disabilities might not bother to apply for SSDI, which would likely reduce the employment rate of awardees. On the other hand, once they obtain early retirement benefits, the opportunity cost of applying for SSDI is reduced because they are guaranteed some benefits even if the SSDI application is denied. This might lead to more applications and eventually higher employment rate of awardees.

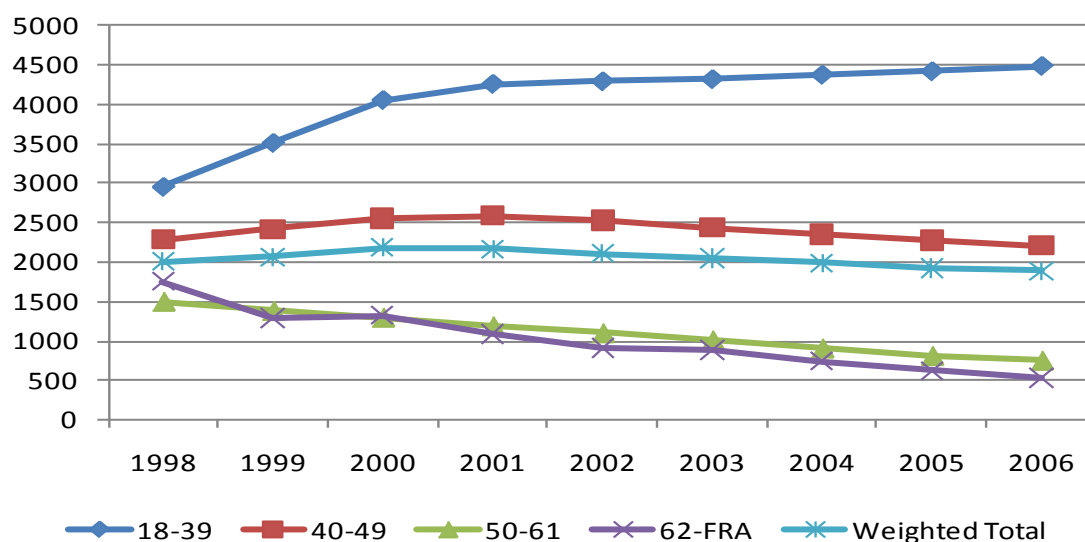
Exhibit IV.6. Cumulative Percentage Employed for 1996 Cohort, by Age at Award, 1998–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

Average annual earnings (including those with zero earnings) for the entire cohort do not exhibit a strong pattern over the 10-year period, but the cohort average disguises differences across the age groups (Exhibit IV.7). The youngest age group experiences a substantial increase throughout the period, especially from 1998 to 2000, and continues after their employment rate starts to drop in 2001. Apparently, the shrinking number of employed in the youngest group were experiencing substantial increases in earnings, even during the recession. Another possible explanation of the growth in mean earnings for the youngest group is that those taking longer to return-to-work, perhaps after investing in training or education, eventually command relatively high wages. We have not investigated the importance of these possible explanations. The averages for the next older age group increase somewhat through 2000, then start to decline, while those for the two oldest age groups decline every year.

Exhibit IV.7. Average Annual Earnings (in 2007 dollars) for 1996 Cohort, by Age at Award, 1998–2006

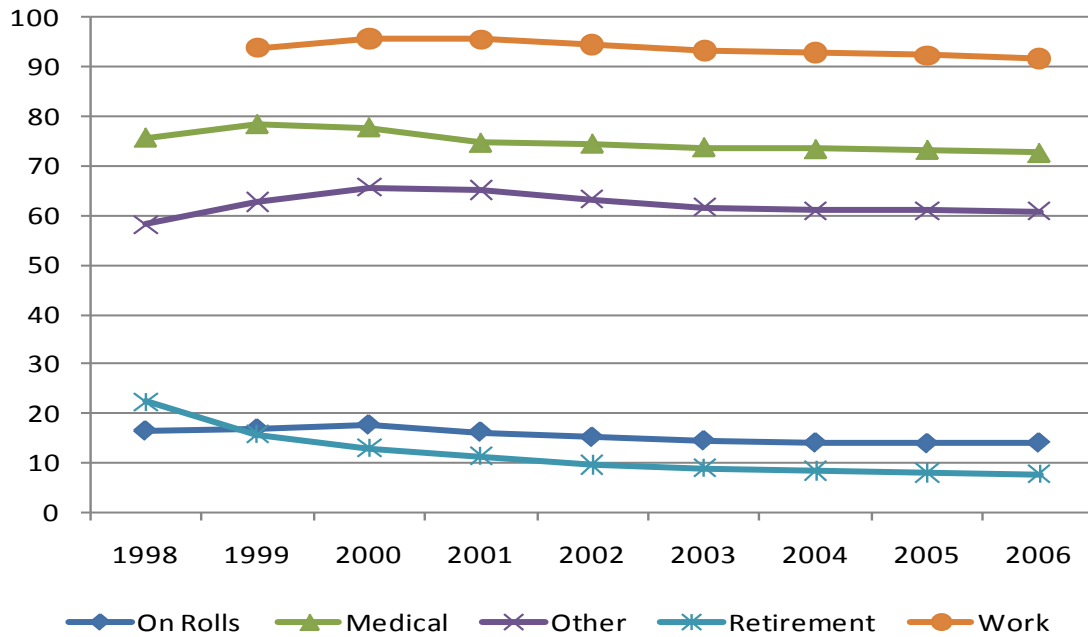


Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

These employment and earnings statistics do not differentiate by current beneficiary status. It is interesting to compare how these statistics vary by termination status, as those who exit the rolls for various reasons, including work, are likely to have very different earnings than those who do not. Exhibit IV.8 shows the percent employed and Exhibit IV.9 shows average annual earnings among those with positive earnings by termination status, including reasons for termination.²³ Not surprisingly, those whose benefits were terminated for work have the best employment outcomes. Their average annual earnings are also quite substantial—between \$35,000 and \$40,000 indexed dollars in each year from 2000 to 2006, more than three times the annualized level of SGA (between \$11,000 and \$12,000 from 1999 to 2006). Also of note is that in most years, beneficiaries who remained on the rolls had a higher employment rate, compared with retirees who were off the rolls. This might be a reflection of older ages among retirees (Exhibit IV.8).

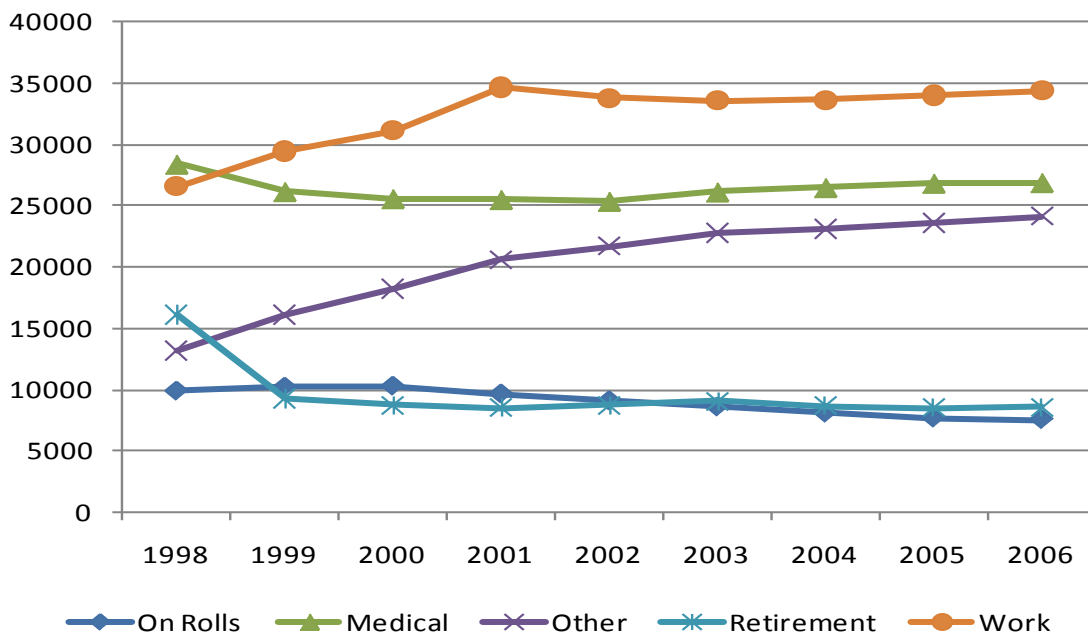
²³ Few beneficiaries had benefits terminated for work in 1998, therefore, the corresponding series in both Exhibits IV.8 and IV.9 starts from 1999.”

Exhibit IV.8. Percentage Employed for 1996 Cohort, by Benefit Status and Reason for Benefit Termination, 1998–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

Exhibit IV.9. Average Annual Earnings (in 2007 dollars) for 1996 Cohort with Positive Earnings, by Benefit Status and Reason for Benefit Termination, 1998–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

Those off the rolls because of medical recovery also fare well but not as well as those off the rolls for work. Approximately 80 percent are employed each year, based on our measure, and average annual earnings of those with earnings are between \$25,000 and \$30,000 indexed dollars each year. Those who leave the rolls for miscellaneous reasons start out with lower employment and earnings than the medical recovery group, but nearly catch up by the end of the period.²⁴ The employment rate for beneficiaries still on the rolls is much lower than those who had their benefits terminated, except retirees, whose employment rate is the lowest. This, however, could be a reflection of the age difference between retirees and others. Mean earnings for those on the rolls with earnings are much lower—below the annualized value of SGA in every year even though these statistics include earnings for those whose benefits are suspended in at least some months, but not terminated.

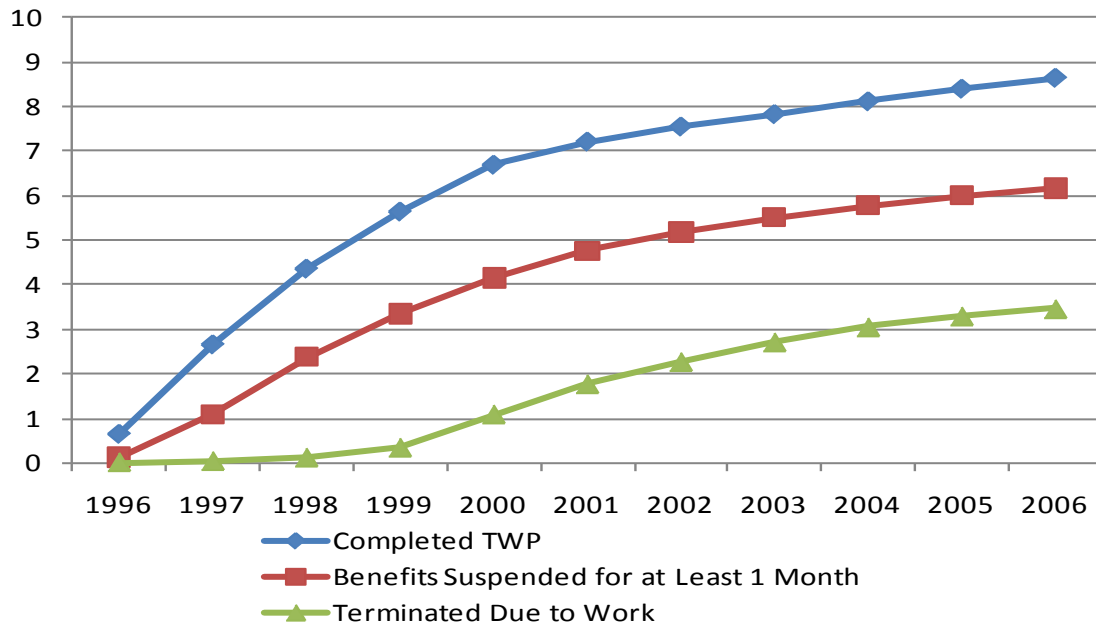
We now examine the timing of the 1996 award cohort's use of work incentives over the entire period observed. Exhibit IV.10 presents cumulative statistics for TWP completion, first benefit suspension for work, and termination for work. The first two of these return-to-work markers all increase rapidly during the first five years on the rolls. They continue to increase, but much more slowly, for the next five years. These patterns mirror the pattern of cumulative employment statistics. The cumulative percentage terminated for work mirrors the same pattern, but with a delay of three to four years, reflecting the first 36 months of the EPE.

The pattern observed for the weighted statistics in Exhibit IV.10 reflects the behavior of all beneficiaries, including the large number of older beneficiaries who have much lower employment rates than their younger counterparts. Statistics for each age group are displayed in Exhibit IV.11.²⁵ The pattern for the youngest age group is an exaggerated version of the pattern for the weighted average. By the end of the fourth year after award, 15 percent had completed the TWP, and from that point to the end of the period only an additional 5 percent did so. The patterns observed for the middle two age groups are very similar to those for the youngest age group, but at much lower levels. For instance, by 2006, only 10 percent of those in the 40–49 age group had completed their TWP and just 3.9 percent in the 50–61 age group had done so.

²⁴ Beneficiaries might leave the rolls for miscellaneous reasons other than work, retirement, medical recovery, or death. For example, their dependent status may be terminated because of death or status change of primary beneficiary, they become entitled to other benefits that are equal or larger, or they are incarcerated.

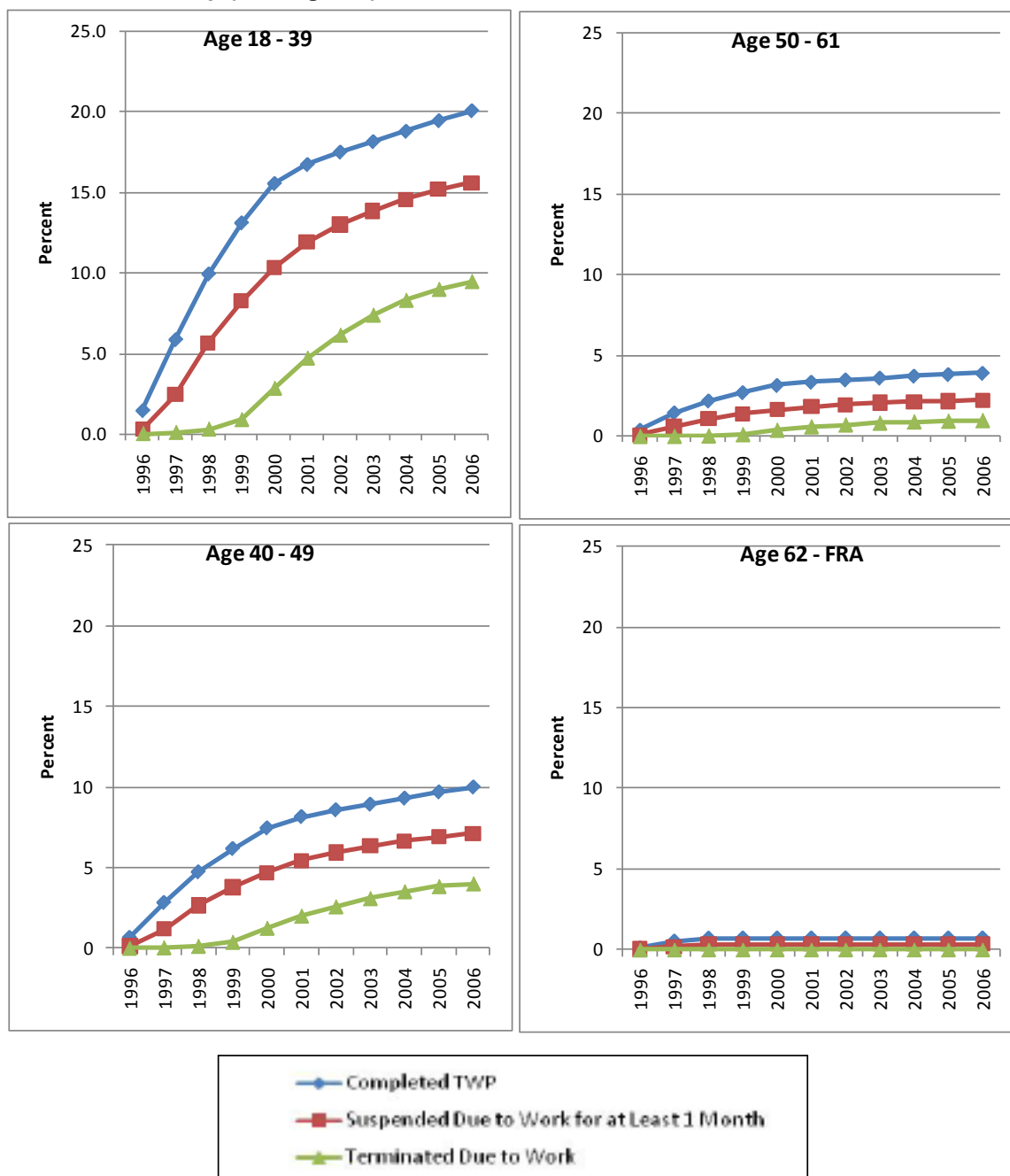
²⁵ Statistics for the oldest age group (62–FRA) are influenced by the fact that all awardees in this group converted to retirement benefits by 1999 unless their benefits were terminated earlier for other reasons. Hence, none of these beneficiaries complete their TWP or experience an initial suspension month for work after 1999 and none are on the rolls long enough to experience termination for work.

Exhibit IV.10. Cumulative Longitudinal Work Incentive Statistics for Weighted 1996 Award Cohort, 1996–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

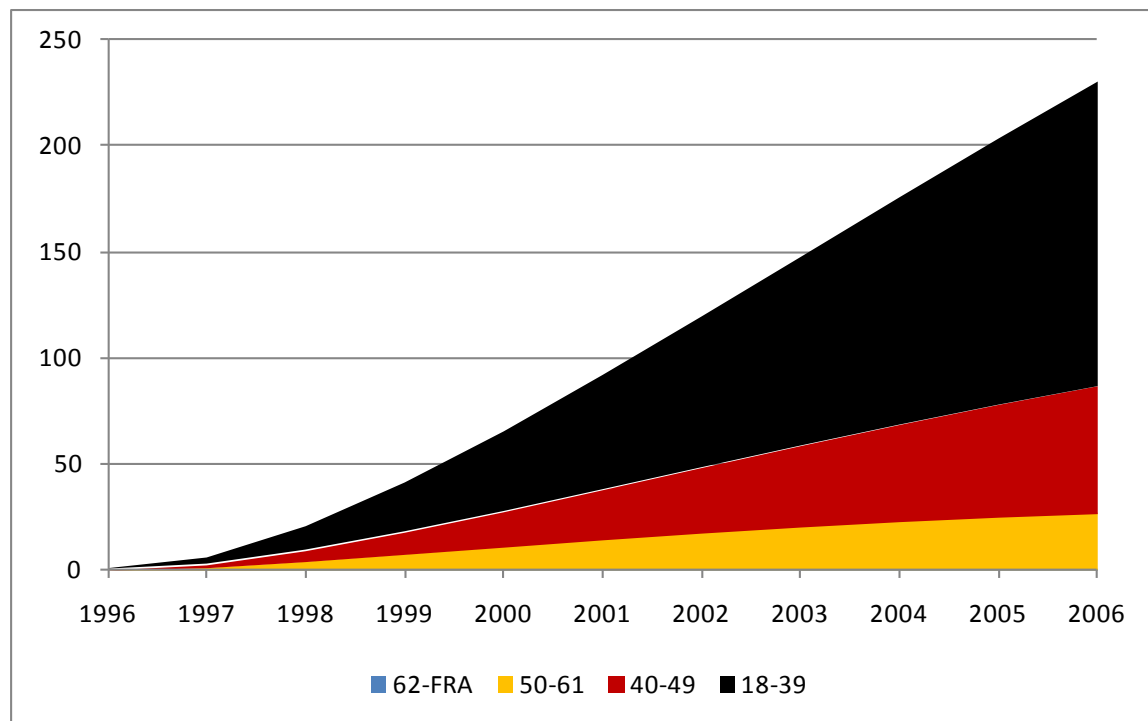
Exhibit IV.11. Cumulative Longitudinal Work Incentive Statistics for 1996 Awardees by Age Group (Unweighted), 1996–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

Next, we measure the extent to which beneficiaries forego benefit payments for work by counting the cumulative years benefits are suspended or terminated for work, by age group (Exhibit IV.12). This measure is the cumulative number of years (cumulative months divided by 12) in which all 1996 cohort awardees were suspended or terminated for work per thousand awardees. As of December 2006, the cohort had accumulated over 230 years off the rolls for work per thousand beneficiaries—less than three months per beneficiary over 10+ years.

Exhibit IV.12. Cumulative Years with Benefit Suspended or Terminated for Work (per 1,000 Beneficiaries) for 1996 Award Cohort by Age at Award, 1996–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

A large majority of cumulative years off the rolls for work (62 percent as of 2006) are attributable to the youngest age group, even though this group accounts for less than 25 percent of the cohort. Those in the 40–49 are close in number to the youngest group (24 percent) but account for a much smaller share of years off the rolls for work (26 percent). Only a small minority (11 percent) is accounted for by those ages 50–61 at the time of award, even though that age group is the largest of the four, accounting for almost 45 percent of all beneficiaries in the cohort. The contribution of the oldest age group is so small that it is not clearly visible in the exhibit. This age-group pattern reflects higher levels of employment and lower mortality among younger beneficiaries, along with the fact that most surviving beneficiaries in the two older cohorts attained the FRA during the 10-year observation period.

C. STATE STATISTICS FOR 1996 COHORT IN 2006

In this section, we examine cross-state variation in employment and work incentive statistics for the 1996 award cohort as of 2006, the 10th full year after award. All state statistics are weighted to reflect the 2001 national award cohort's age-sex distribution.²⁶

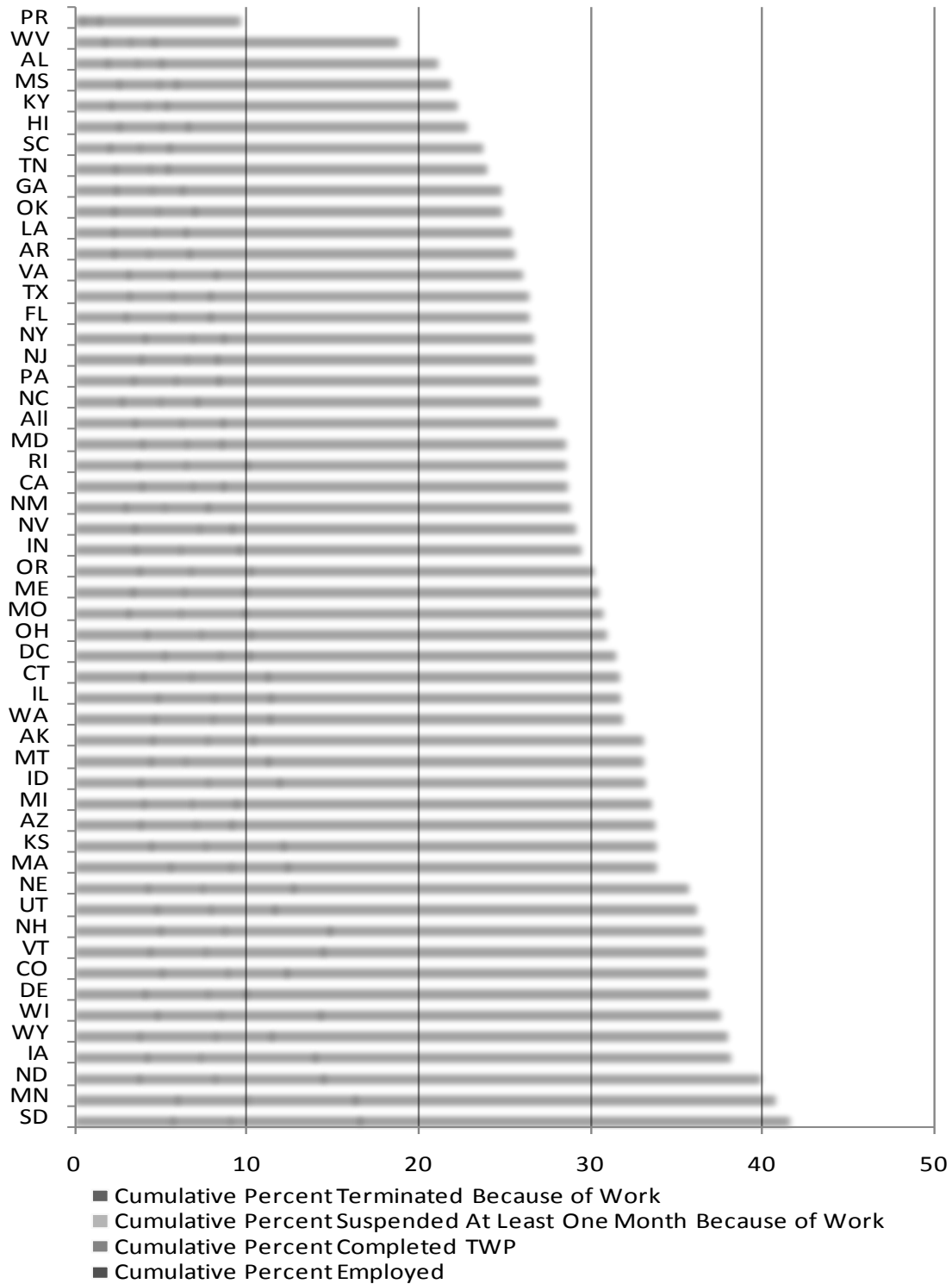
Cross-state variation in cumulative percent employed, TWP completion, benefit suspension, and termination for work is displayed in Exhibit IV.13. The full length of each bar (i.e., the length of all four components combined) is the cumulative percent employed for the corresponding geographic area (individual state, Puerto Rico, District of Columbia, or entire U.S.), and the areas have been ordered from lowest to highest by this measure. As for other sub-measures, moving from left to right, the first component of each bar represents the percent with benefits ever terminated for work, the combined first and second components represent the percent with benefits ever suspended for work, and the combined first, second and third components represent the percent having completed the TWP.²⁷ Taking South Dakota as an example, we found 5.7 percent of its weighted 1996 award cohort had benefits terminated for work, 9 percent had benefits suspended for work, 16.6 percent completed the TWP, and 41.5 percent were employed, at some point between 1996 and 2006.

Variation in the cumulative percent employed is high, ranging from 9.6 in Puerto Rico and 18.7 in West Virginia to 41.5 percent in South Dakota. The median percent employed is 30.0 percent, for Oregon, somewhat higher than the national mean of 28.9 percent—all of the four most populous states have values that are below the median. In all states, a large majority of those who are employed had not completed the TWP and had never had their benefits suspended or terminated for work. The percentage with TWP completion ranges from 1.4 in Puerto Rico and 4.6 in West Virginia to 16.6 in South Dakota; the percentage with benefit suspension for work ranges from 0.9 in Puerto Rico and 3.2 in West Virginia to 10 in Minnesota, and percentage with benefit terminated for work ranges from 0.5 in Puerto Rico and 1.7 in West Virginia to 5.9 in Minnesota. Variation across states in all work-incentive statistics follows the pattern seen in cumulative percent employed, although inexactly.

²⁶ 2001 national cohort was chosen for weighting the state statistics because it's the middle cohort in our study period and it also represents the last year before TTW was implemented.

²⁷ Although the presentation of the statistics might suggest that those passing one marker are always a subset of those passing what is normally the previous marker, this is not always true. For instance, some whose benefits are terminated for work did not experience a suspension for work first and TWP completion is sometimes not recorded in the data for those whose benefits are suspended or terminated for work.

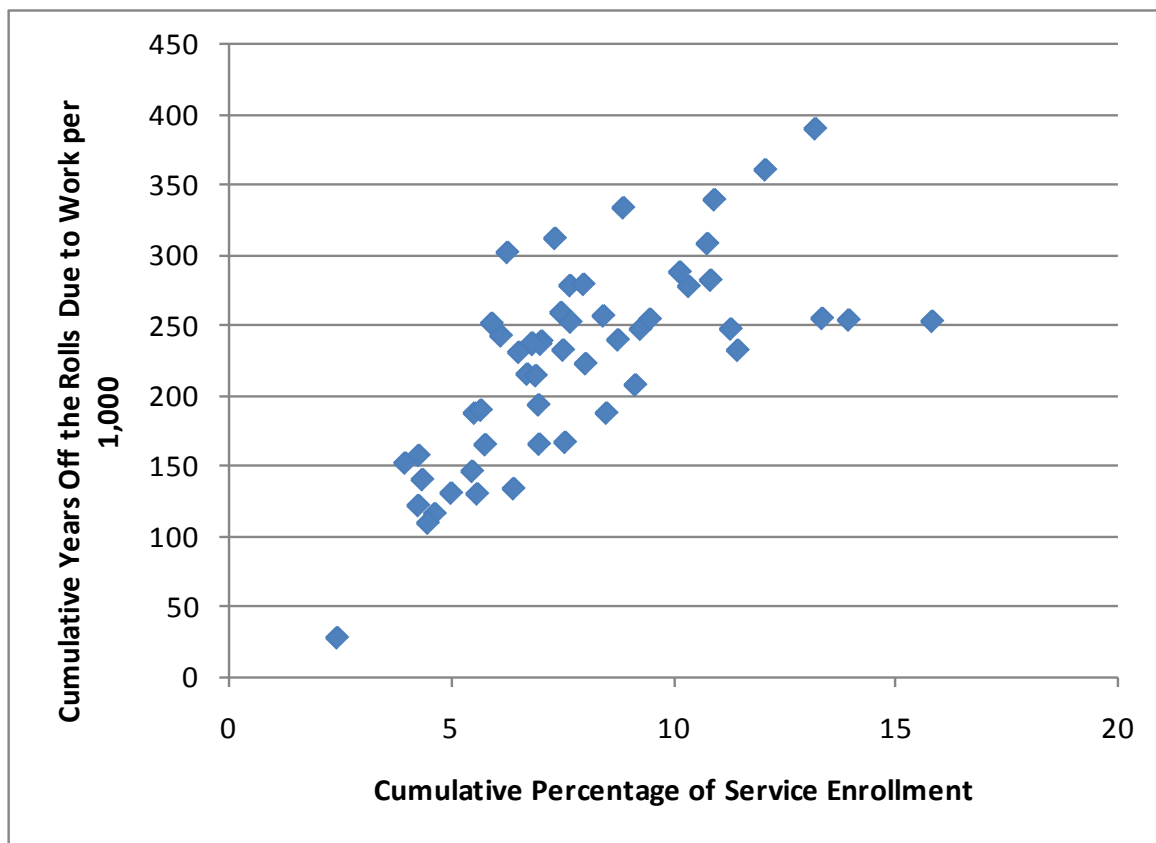
Exhibit IV.13. Cumulative Work Incentive Statistics as of 2006 for Weighted 1996 Award Cohort, by State



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

Other statistics also varied substantially across areas (Appendix Exhibit A.3). Excluding service enrollment that ended before fiscal year 1998 (for which data were not available), the cumulative percentage enrolled for services ranges from 2.4 percent in Puerto Rico and 3.9 percent in Mississippi to 15.8 percent in Vermont. Cumulative years off the rolls for work per 1,000 beneficiaries ranges from 28 years in Puerto Rico and 109 years in West Virginia to 389 years in South Dakota. The strong positive relationship between these two series across states is depicted in the scatter diagram of Exhibit IV.14.²⁸

Exhibit IV.14. Cross-State Relationship Between the Cumulative Percentage Enrolled for Services and Cumulative Years Off the Rolls for Work per 1,000 Beneficiaries



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to RSA-911 data for the 1996 award cohort. Closures that occurred prior to fiscal year 1998 are not captured in the service enrollment statistics. The statistics appear in Appendix A, Exhibit A.3.

Cumulative years off the rolls are substantially higher in the states with relatively high cumulative service enrollment than in states with relatively low enrollment. The cause of this strong relationship is unclear. High service enrollment might contribute to high employment, but it seems likely that this is only part of the explanation, at best, because we know from the

²⁸ The simple correlation coefficient is 0.64.

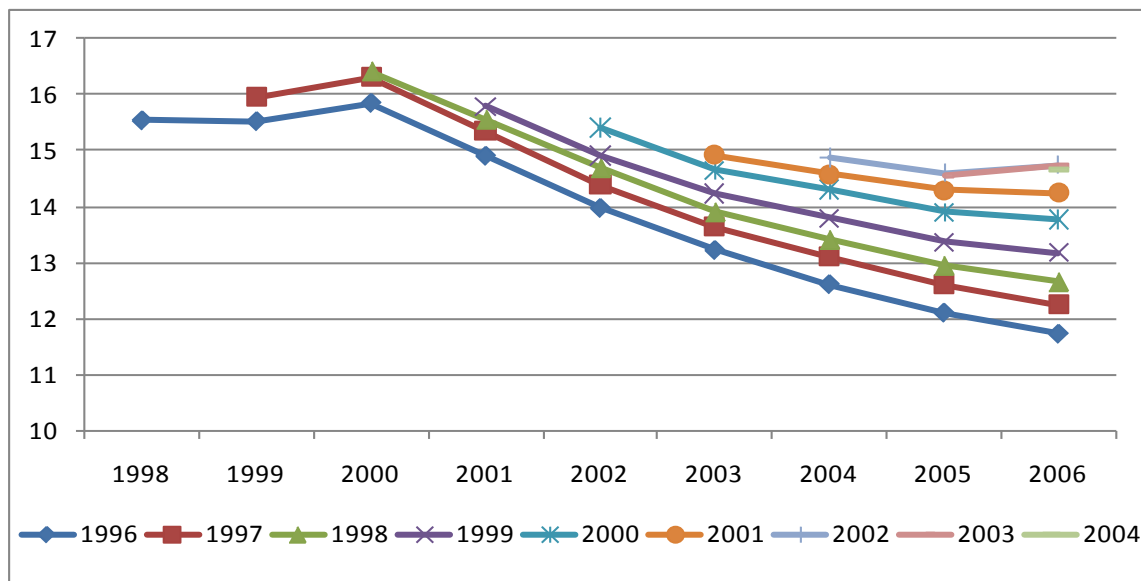
national statistics that cumulative service enrollment is much lower than cumulative employment. The alternative, and perhaps more important, explanation is that beneficiaries in some states are more likely to work and leave the rolls than beneficiaries in other states because of differences in the distributions of personal characteristics (e.g., health or functional limitations) or environmental differences (e.g., the strength and nature of the economy, population density, availability of public transportation, etc.), which leads to greater utilization of VR services in those states.

V. MORE RECENT COHORTS

In this section, we compare selected age-weighted statistics for more recent cohorts to those of the 1996 cohort. Each exhibit is shown similarly, with calendar year on the horizontal axis, outcome measure on the vertical axis, and each series corresponding to a cohort, which can be identified usually by the starting point of the series (e.g., series starting in 1996 represents the weighted 1996 cohort). Moving from left to right, as the cohort becomes more recent, there are fewer years of data to show.

In Exhibit V.1, we compare the percent of beneficiaries employed in a given year across cohorts. Because we computed the employment statistics starting from the second post-award year, the series for the 1996 cohort starts with 1998, and the last series is for the 2004 cohort, showing the 2006 value for that cohort only.

Exhibit V.1. Annual Percentage Employed Since Second Post-Award Year, by Award Cohort, 1998-2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

Beneficiaries in the 1997, 1998 and 1999 cohorts all had higher employment rates in the second post-award year than those in the 1996 cohort. However, this trend did not last. As the economy entered into recession in 2001, it affected all cohorts regardless of number of years on the rolls. The longer beneficiaries stay unemployed on the rolls, the harder it is for them to return to work; however, it is hard to predict whether the increasing trend of the

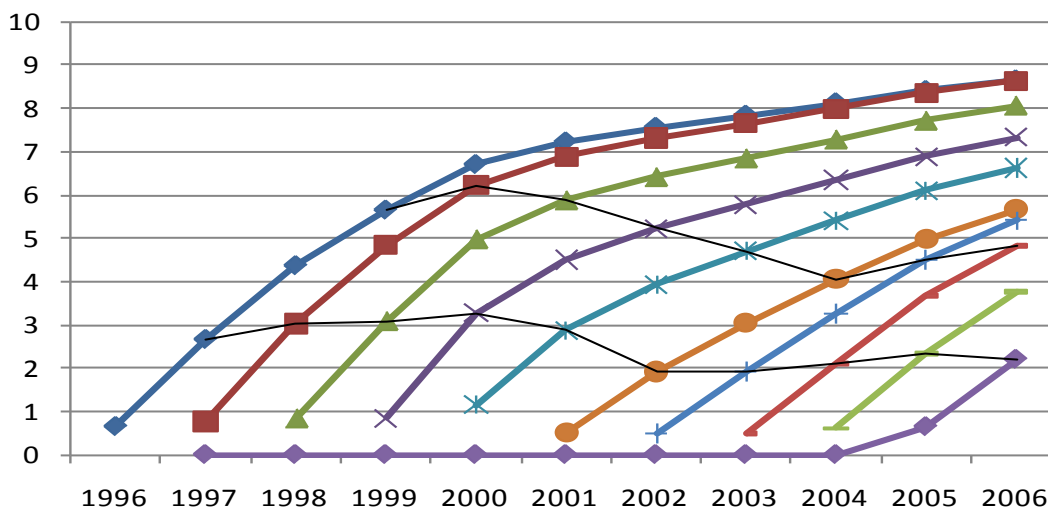
employment rate experienced by the 1996 cohort, from the second to the fourth post-award year (1998-2000), would have continued without a recession. We do see the employment rate for the 1997 and 1998 cohorts decline in 2001 as well, clearly a reflection of the recession. The sharp drop of the employment rate continued across the cohorts throughout the recession, but appears to have slowed down after 2003 as the economy recovered. By then, the 1996 cohort was already in its seventh year on the rolls and even a better economic environment probably would not have been enough to incentivize beneficiaries to go back to work. A similar trend was also found when comparing the cumulative percentage employed across cohorts (Appendix Exhibit A.4).

We did find some positive signs among awardees in 2003, the first cohort that entered during the recovery, although their initial employment statistic is the lowest among all cohorts considered (Exhibit V.1). Similar to the trend we saw with the 1996 cohort, their employment rate appears to be on a rising path again, with just two years of data for the second and third post-award years. It seems likely, however, that this growth was eventually halted, and perhaps reversed, by the 2008 recession.

Exhibit V.2 compares the cumulative percent of awardees completing TWP across the 10 study cohorts. In order to facilitate cross-cohort comparison of outcomes for the same post-award year without over-crowding the exhibit, we connect the points representing the second and fourth year values for each cohort (corresponding to the first and third full post-award year, respectively), thus creating two horizontal lines in the exhibit. Because the age-sex composition is the same across all weighted cohorts, the shape of these lines may suggest non-demographic changes in policy or environment that contribute to differences in work-incentive programs used across cohorts. In the absence of any change, we would expect to see two perfectly horizontal straight lines. We will discuss the potential causes for some of the observed changes below.

Looking at first-year values, we found a small but steady increase between the 1996 cohort and the 2000 cohort followed by a sudden drop experienced by the 2001 cohort. After this, the cumulative percent completing TWP was on the rise again. A closer examination shows the drop is not associated with the 2001 cohort alone. The substantial decline between calendar years 2000 and 2001 is also seen when comparing second-year values (the lower horizontal line) between the 1999 and 2000 cohorts, as well as the third-year values between the 1998 and 1999 cohorts, and the fourth-year values between the 1997 and 1998 cohorts (the higher horizontal line).²⁹

²⁹ The only exception is seen when comparing the fifth-year values between the 1996 and 1997 cohorts: we found an increase in percent with TWP completion from 2000 to 2001. This is not surprising, given the 1997 cohort in general appears to out-perform the 1996 cohort. In fact, the rising trend indeed slowed down in 2001.

Exhibit V.2. Cumulative Percentage with TWP Completion, by Award Cohort, 1996–2006

Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

We attribute this decline primarily to the substantial 2001 increase in the TWP income threshold. As a result, numerous months that would have counted as TWP months under the pre-2001 amount no longer do under the higher value for 2001 and later years. There is no simple way to determine whether the TWP income increase had an impact on beneficiary behavior. It is possible, for instance, that some beneficiaries reacted by reducing the earnings to keep them below the new threshold and avoid using up TWP months and entering the EPE, but we suspect that extremely few beneficiaries are so well informed that they would engage in such strategic behavior, even if they had sufficient motivation to do so; in addition, reduction in working hours may not always be accommodated.

The decline stops with the 2001 cohort, the first cohort subject to the higher TWP income threshold starting from its award year; later cohorts complete the TWP at modestly higher rates, holding years since award constant. If the TWP threshold increase were the only explanation for the difference between the experiences of the 2001 and the 1997 cohorts in their first four years on the rolls, then the impact of the TWP income increase, as of the fourth year on the rolls, would be a reduction in the cumulative TWP completion percentage from 6.2 (fourth-year value for the 1997 cohort) to 4.1 (fourth-year value for the 2001 cohort)—a 35 percent decline. However, it is unlikely that the increase of TWP threshold is the only factor behind the decline in TWP completion. For example, the analysis of the employment statistics in Exhibit V.1 suggests that the downturn and recovery may have played a role in the decline-then-climbing pattern in the TWP series.

It is possible that the TWP threshold increase only delayed TWP completion for some beneficiaries. We do not know the extent to which this increase reduced the number of awardees who eventually complete their TWP. However, the size of the differences between the series for the 1997 and 2001 cohorts suggest that the effect is more than just delay. The

percentage of the 2001 cohort that had completed the TWP by the end of its sixth year on the rolls, 5.7, was below the percentage of the 1997 cohort by the end of its fourth year on the rolls, 6.2. If this difference were explained solely by induced delays in TWP completion, then the length of the typical delay would have been greater than two years.

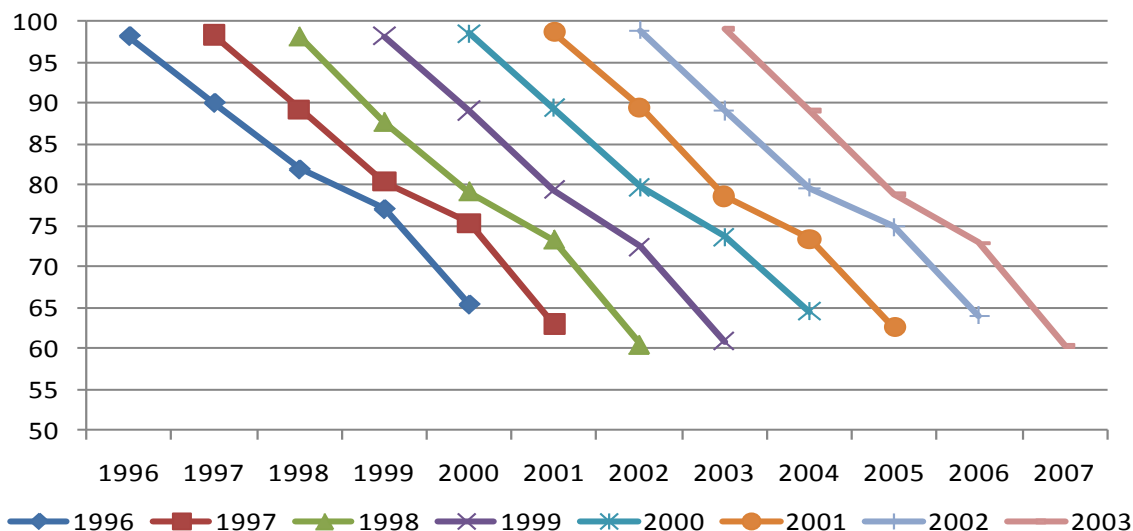
The effect of the TWP income increase is also visible in the earnings of those who complete the TWP and continue to work while remaining on the rolls. For ease of exposition, in Exhibits V.3 and V.4 we focus on those who completed their TWP during their award year; results for those completing in later years after award are qualitatively similar.³⁰ For each cohort, we followed the employment and earnings of this group for the next four years.

As expected, we found near universal employment during the year of TWP completion (Exhibit V.3). This high level of employment, however, did not last; post-TWP trends are similar across award cohorts: annual percentage of employed beneficiaries (i.e., earnings more than \$1,000) continued to drop. The drop is much larger in the fourth year, but this reflects the fact that those who exit after the 36th EPE month are dropped from the sample, and presumably they were almost all employed in the fourth year.

Exhibit V.4 presents average annual earnings among TWP completers who remained on the rolls. Consistently across cohorts, we find stable average earnings that were above the 2007 annualized SGA in the first three years after completing TWP, followed by a sharp drop in the fourth year, to a level below SGA. The drop reflects that most of those with continued earnings above SGA have left the rolls, but it might also reflect some beneficiaries reducing their earnings sufficiently to continue benefit receipt.

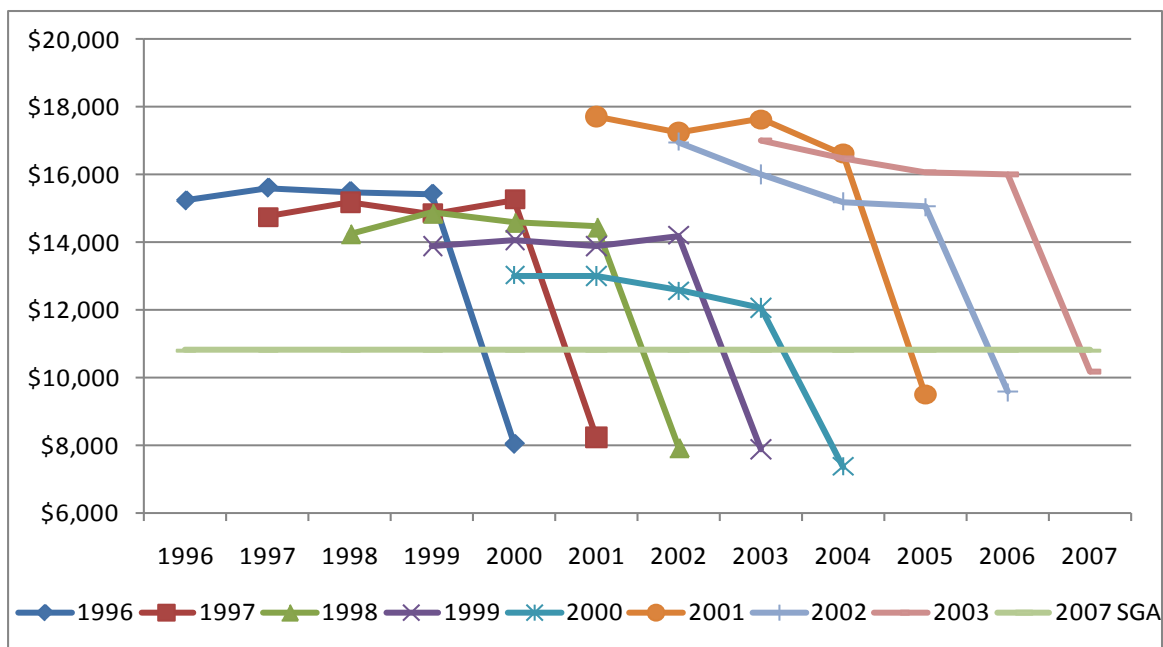
³⁰ Because we limited the study population to TWP completers remaining on the rolls, which varies by year, Exhibits V.3 and V.4 are not weighted. As a result, demographic changes may have contributed to differences across cohorts.

Exhibit V.3. Annual Percentage Employed Since TWP Completion Among Beneficiaries Remaining On the DI Rolls (Unweighted), by Award Cohort, 1996--2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

Exhibit V.4. Average Annual Earnings (in 2007 dollars) for Beneficiaries Remaining on the Rolls with Earnings Since TWP Completion (Unweighted), by Award Cohort, 1996--2006



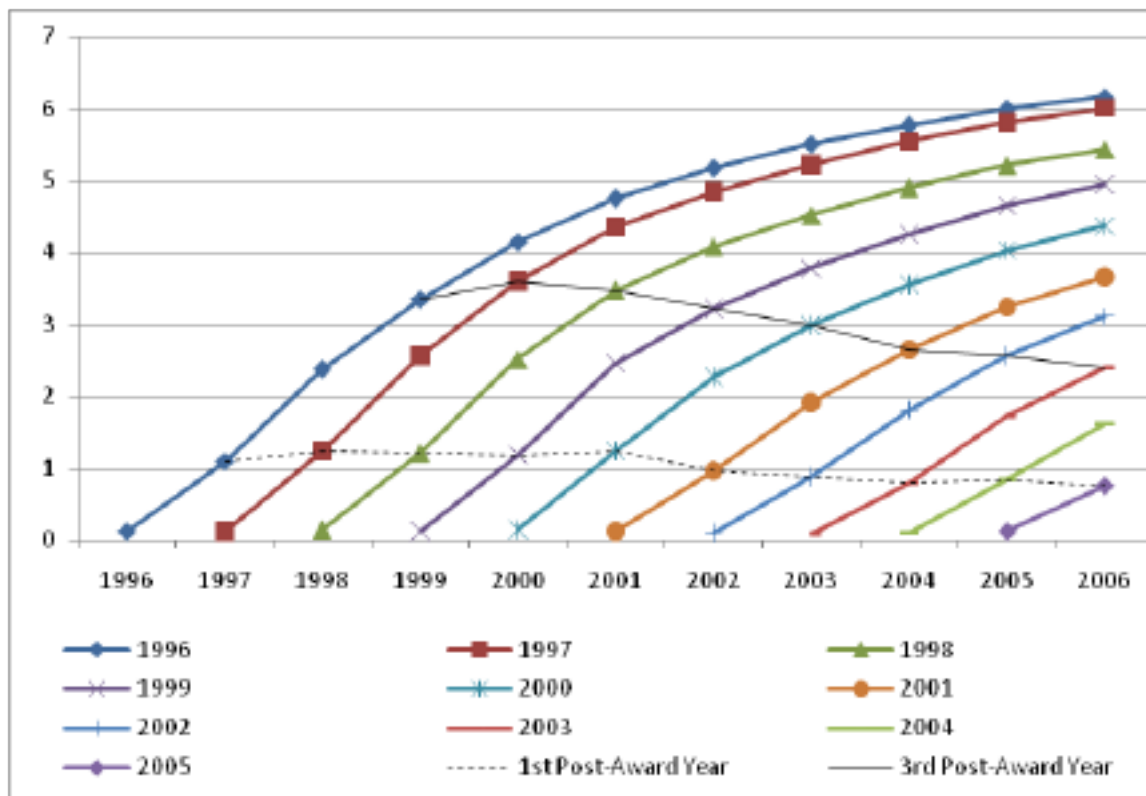
Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to the MEF.

The influence of change in the TWP income amount is evident from changes in mean earnings during the TWP completion year—months with earnings are only counted as TWP

months if earnings are above this limit. There is a gradual decline in mean earnings in the TWP completion year from the 1996 cohort through the 2000 cohort, which likely reflects the fact that the TWP income amount was not adjusted for average wage growth during this period, whereas the reported earnings statistics are adjusted. After this growth adjustment, the TWP income amount gradually declined during this period and months with low indexed earnings that would not have exceeded the TWP income amount in earlier years were now counted as TWP months, thereby reducing mean indexed earnings. The sharp increase for the 2001 cohort—36 percent above the mean for the 2000 cohort—almost certainly reflects the large 2001 increase in the TWP income amount; many months with indexed earnings below the new TWP income amount, but above the old amount, were not counted as TWP months in 2001 and thus mean earnings for counted months increased. The TWP income has been indexed to wage growth since 2001. Beneficiaries can earn less than this amount and remain on the rolls without triggering a TWP month indefinitely.

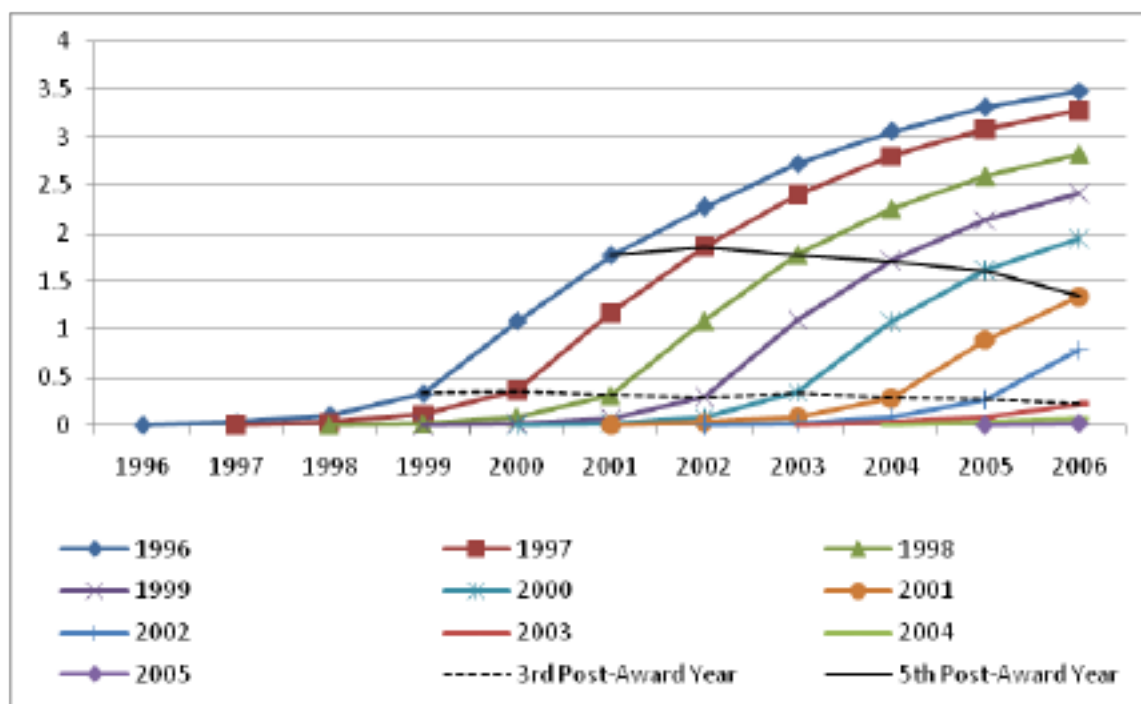
In Exhibits V.5 and V.6, we compare across cohorts the cumulative percent with benefit suspended and terminated for work, respectively.

Exhibit V.5. Cumulative Percentage with Benefit Suspended for Work, by Award Cohort, 1996–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

Exhibit V.6. Cumulative Percentage with Benefit Terminated for Work, by Award Cohort, 1996–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

Like cumulative percent TWP completion, cumulative percent with at least one month of benefit suspension started to decline in 2001, holding the years since award constant (Exhibit V.5). Presumably TWP threshold increase also delayed initial benefit suspensions for work, because one would have to complete nine months of TWP before any benefit suspension. After TWP completion, the benefit is only terminated in those months when earnings are above the SGA level, which was kept at \$500 between 1990 and June 1999 for non-blind beneficiaries. Effective July 1, 1999, SGA was statutorily increased to \$700 and indexed annually to AWI thereafter. As a result, monthly earnings needed to be larger to result in benefit suspension after June 1999, which in turn may delay first benefit suspension or reduce the number of beneficiaries that ever reach that marker. However, based on available data (see Exhibit V.5), there has been no apparent decline in suspensions, holding years since award constant from 1997–2000—years that span the SGA increase and precede the TWP threshold increase. This suggests that the SGA increase in 1999 had little effect on the percent of beneficiaries with benefit suspension for work, or that any effect was offset by other factors.

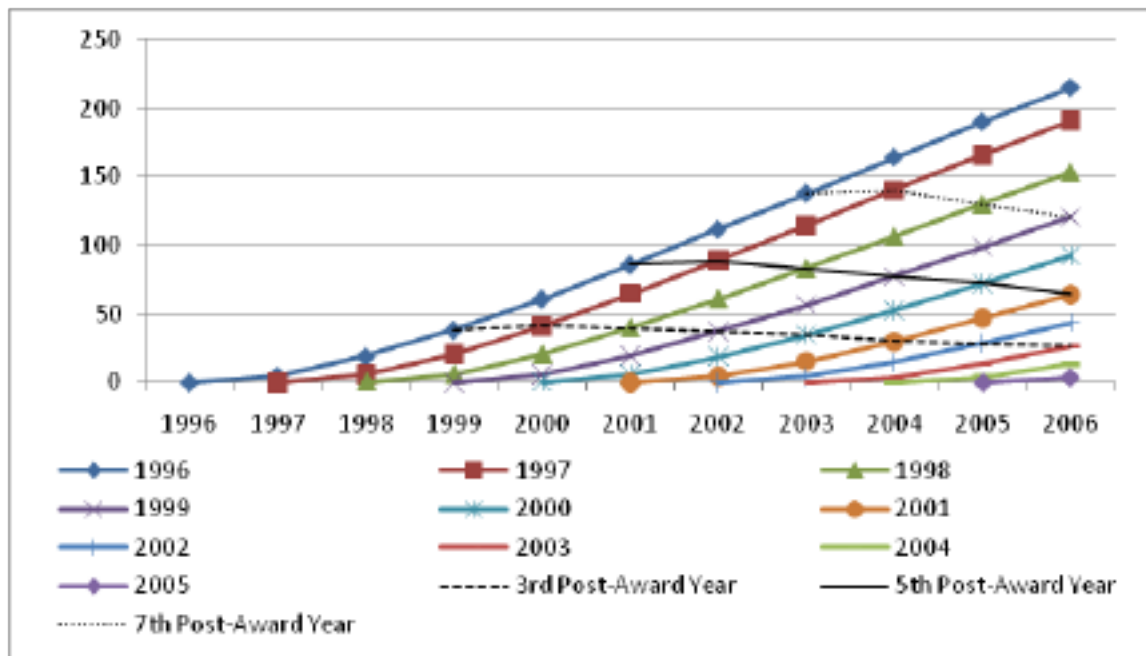
Unlike the bounce-back we see earlier in the percentage completing TWP starting with the 2002 cohort, the percentage with benefit suspension continues to decline for those awarded after 2001 although the rate of decline appears to have diminished. It is likely that this reflects the lingering effects of the 2001 recession, but it is also possible that policy changes played a negative role—the SGA increase presumably had a negative effect, if any. Although other policy initiatives were designed to increase earnings and exits from the rolls,

it is also possible that they had the opposite effect. Demonstrated previously (by Stapleton et al. (2008) and Thornton et al. (2007), the rollout of TTW increased service enrollment, but it is possible that some beneficiaries delayed exit for work to take advantage of increased services. It is also possible that the expansion of counseling services (BPAO and WIPA) increased beneficiary awareness of how much they could earn without losing their benefits, so that some wishing to stay on the rolls were more careful to keep their earnings below that level—a phenomenon known as “parking.”

Exhibit V.6 shows that the series for the cumulative percentage terminated for work followed the same pattern as those for initial benefit suspension, but with a delay attributable to the first 36 EPE months. Because of the delay, the horizontal lines in this exhibit connect the values for the fourth and sixth years after award across cohorts. As of the sixth year, we found that the 1997 cohort had the highest cumulative percentage with benefit terminated for work at 1.86 percent. Later cohorts have successively lower values, including the most recent one observed for six years, the 2001 cohort, 1.34 percent of whom had benefit terminated for work—28 percent lower than the value for the 1997 cohort.

We also compare cumulative years off the rolls for work across cohorts, where the horizontal lines connect the values across cohorts in the fourth, sixth, and eighth year after award, respectively (Exhibit V.7). The net effects of the economy, numerous policy changes, and other factors affecting the number of years of benefit savings for work are all reflected in this exhibit. Starting with the 1997 cohort, each successive cohort has had fewer cumulative years off the rolls for work, holding years since award constant.

Exhibit V.7. Cumulative Years with Benefit Suspended or Terminated for Work (per 1,000 Awardees), by Award Cohort, 1996–2006

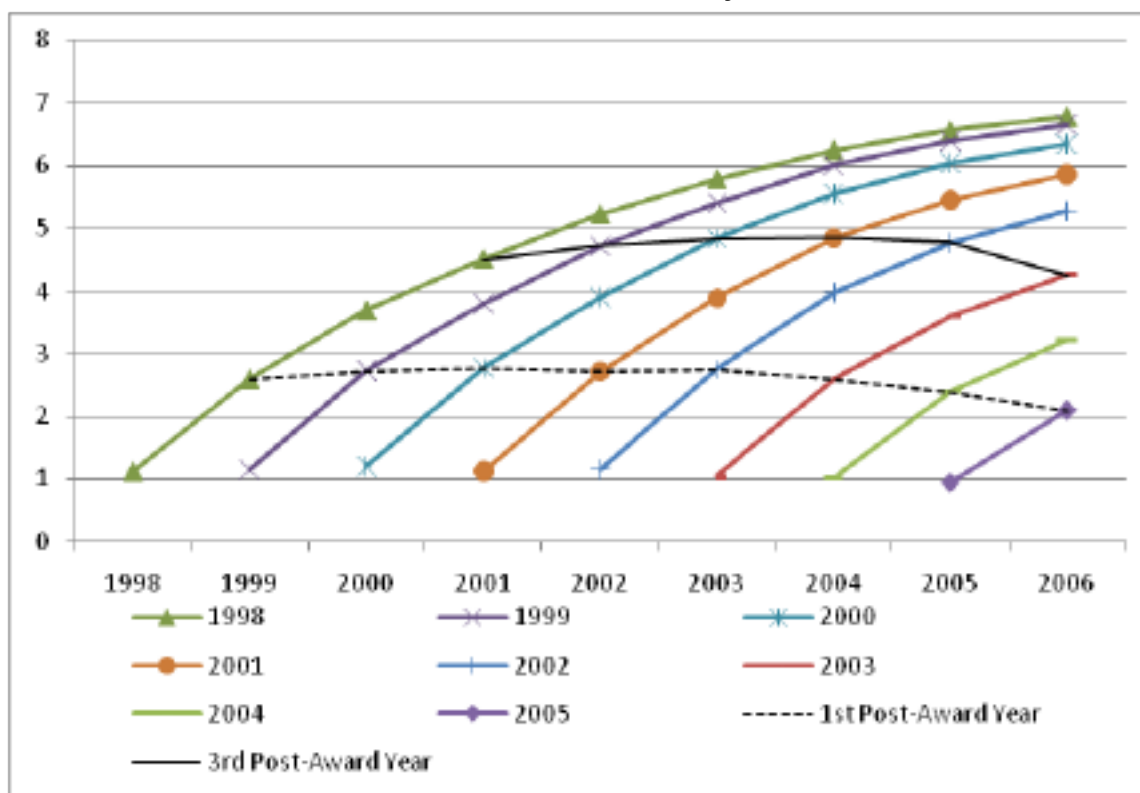


Source: Authors' analysis of DI beneficiary records in the 2007 TRF.

Holding years since award constant, the 1997 cohort experienced the most years off the rolls for work, and each successive cohort has experienced fewer. As of the sixth year since award, 89 years of benefits had been suspended or terminated for every 1,000 beneficiaries in the 1997 cohort, compared to 77 years (13 percent lower) and 64 years (28 percent lower) respectively for the 1999 and 2001 cohorts.

Exhibit V.8 compares the cumulative percentage of beneficiaries enrolled for services across cohorts starting with the 1998 cohort—the first cohort with complete data. The level of service enrollment was quite stable for the 1998 through 2002 cohorts. It appears that the more recent cohorts enrolled for services at somewhat lower rates, despite the previously demonstrated positive effect of TTW on service enrollment.³¹ Hence, it appears that the observed decline in service enrollment for these cohorts is attributable to other factors. The statistics for 2006 are likely deceptive, however, because of incomplete reporting of enrollment in the available RSA-911 closure data.

Exhibit V.8. Cumulative Percent Enrolled for Services, by Award Cohort, 1998–2006



Source: Authors' analysis of DI beneficiary records in the 2007 TRF matched to RSA-911 data

³¹ See Stapleton et al. 2009. The trends observed here are logically consistent with earlier findings, which compare changes in service enrollment for beneficiaries who received their Tickets early in the rollout period to contemporaneous changes for those who received Tickets later.

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VI. SUMMARY AND CONCLUSIONS

In this final chapter, we first summarize the findings for the 1996 award cohort and consider their implications for SSA initiatives to increase exits for work, most notably TITW and the Benefit Offset National Demonstration (BOND). This discussion serves to illustrate the importance of the longitudinal perspective. We conclude with a summary of findings for more recent cohorts, to the extent they are observed.

A. THE 1996 AWARD COHORT

1. Exit for Work

As discussed in the introduction, the most commonly cited statistic on DI beneficiary exits for work is the 0.5 percent of DI worker beneficiaries whose benefits are terminated for work in a typical year, a cross-sectional statistic. In contrast, the longitudinal statistics in our study illustrate the percentage of awardees that eventually have their benefits terminated for work is much higher; for the 1996 award cohort, it was 3.7 percent as of 10 years later. This statistic suggests a level of exit for work that is much higher than the 0.5 percent cross-sectional figure, yet both are based on counts of exits for work. So why are they so different? The cross-sectional statistic has all current beneficiaries in the denominator, including millions of workers who have been on the rolls for many years and failed to exit for work in the past, and counts terminations in the current year only. The longitudinal statistic includes only those who entered 10 years ago and counts all of their (first) exits for work over that period. Neither is “right” or “wrong,” but each must be understood for what it represents.

We also found that many in the 1996 award cohort had their benefits suspended for work, but not terminated. Such beneficiaries have left the rolls for work, at least temporarily, however. In total, 6.5 percent of the 1996 cohort left the rolls for work, at least temporarily, in the 10 years after their award.

The percentage who exit for work, whether temporarily or permanently, fails to capture an important dimension of exits for work: the duration of exit for work. This dimension is important because some whose benefits are suspended for work never have their benefits terminated for work, and some whose benefits are terminated for work return to the rolls later on; in fact, by the end of the 10-year period, 27 percent of those in the 1996 cohort whose benefits had been terminated for work had been reinstated. To capture the duration of exits for work, we counted the number of months that all beneficiaries in the 1996 award cohort were off the rolls for work in the 10-year period. They had accumulated the equivalent of 230 years off the rolls for work per thousand beneficiaries. This represents 2.3 percent of all the months in their first 10 years, or approximately 3.4 percent of those

months in which their benefits were not terminated for some other reason (primarily age and mortality, but also medical improvement and miscellaneous others).³²

The longitudinal exit for work statistics for those 1996 awardees under age 40 when they received their awards—nearly a quarter of the entire cohort—are especially remarkable. Ten years after award, the benefits of almost 16 percent had been at least suspended for work, including almost 10 percent that were terminated for work. They had accumulated the equivalent of 144 years off the rolls for work per thousand beneficiaries, which represents 62 percent of the years in which their benefits were not terminated for some other reason. Their months off the rolls for work accounted for 62 percent of the entire cohort's months off the rolls for work.

2. Return to Work and TWP Completion

Statistics on the extent to which beneficiaries return to work and make progress toward exit to work are also of significant interest to policymakers and others. As with exit statistics, the statistics most often cited are cross-sectional in nature. For instance, Livermore et al. (2009) found that less than 13 percent of DI-only and 15 percent of DI beneficiaries concurrently receiving SSI benefits reported having worked during the previous year, based on the 2006 National Beneficiary Survey. Longitudinal statistics show that a much larger percentage of beneficiaries works at some point after program entry. For the 1996 award cohort, 28 percent worked during at least one year (starting with the second year after award), although no more than 16 percent worked in any one year.

Completion of the TWP represents a major marker in a beneficiary's efforts to work and potentially leave the rolls for work. We found that over 10 percent of the 1996 award cohort had managed to attain that marker by the 10th year after award. This stands in marked contrast to the cross-sectional TWP completion statistic from 2000, the last year before the increase in the TWP income limit: the number of TWP completions was just 1.5 percent of the number of beneficiaries who were on the rolls in December of the previous year.³³

Longitudinal statistics on employment and TWP completion for those 1996 cohort members who were under age 40 at time of award, like their exit for work statistics, are also remarkable: 46 percent had worked in at least one year by 2006, and 20 percent had completed their TWP.

³² The denominator for these percentages does not include months during their award year, as the DI work incentives make it almost impossible to leave the rolls for work in the award year, even temporarily. The denominator for the second percentage assumes, when an individual's DI benefit was terminated for other reasons, it happened at the end of June; therefore, six months are counted in the denominator for that person. The percentage would be slightly smaller if we had assumed end-of-the-year termination and counted the entire 12 months.

³³ Based on the TRF, 86,760 SSDI beneficiaries completed their TWP in 2000. This represents 1.5 percent of 5,798,776 SSDI beneficiaries who were on the rolls in December 1999 (SSA Annual Statistics Report, 2009, Table 3).

3. Other Major Findings

We found that a large majority of those who return to work do so within the first five years after award. For the 1996 cohort, 80 percent of those that returned to work by 2006 had done so by their fifth year after award. Similarly, most who completed the TWP and had their benefits suspended for at least one month did so within the first five years. Terminations for work rarely occur before the fourth year after award, reflecting the need to complete at least 36 EPE months before termination for work can occur. They increase rapidly after that but tail off by the end of the 10-year period.

Less than 7 percent of the 1998 award cohort (the earliest cohort for which we had complete service enrollment data) had enrolled for services as of 2006. Of those, nearly 18 percent had at least one month off the DI rolls for work by the end of the period. A large majority of those who spent time off the rolls because of work (79 percent) never enrolled for services. Although most of those who enroll for services do so before they complete the TWP, a substantial minority enrolls after TWP completion or even after their first suspension for work.

There is large cross-state variation in employment, use of DI work incentives, and months off the rolls for work. For the 1996 cohort, age-sex-adjusted cumulative employment rates range from less than 20 percent at one extreme to over 40 percent at the other. Rates of TWP completion, first suspension for work, and termination for work essentially follow the same pattern across the states; the percentage terminated for work ranges from less than 2 percent at one extreme to almost 6 percent at the other. Cumulative service enrollment also varied markedly—by a factor of four from the lowest enrollment state to the highest. Presumably, this variation is reflective of the variation across states in the economic and policy environment and the characteristics of awardees (other than age and sex).

4. Implications for Ticket to Work

The finding that 79 percent of the 1998 cohort who spent time off the rolls for work never enrolled for services might explain why our earlier TTW impact analysis did not find a measurable effect of the 2002 rollout of TTW on earnings and benefits of eligible beneficiaries, even though we found a positive impact on service enrollment (Stapleton et al. 2008). It might be that the bulk of the additional service enrollees were beneficiaries who would have increased their earnings and left the rolls for work without services.³⁴ Under the

³⁴ There is no definitive way to determine if the additional enrollees would have left for work if they had not enrolled, and there are other plausible explanations of our inability to find impacts. It is interesting, however, that the most successful EN (in terms of assignments and payments) offers an option that ought to be attractive to beneficiaries who are proceeding to leave the rolls on their own. If beneficiaries assign their tickets to AAA Take Charge and follow up by submitting documentation of their earnings, the EN will pay them 75 percent of all Ticket payments received. No services apart from information on a website are provided. The new TTW regulations explicitly allow ENs to make such payments to beneficiaries. This approach could help numerous beneficiaries leave the rolls, and it is certainly consistent with the intent of the TTW concept, but it is also likely to appeal to those who would otherwise leave the rolls without the services.

new TTW regulations, SSA further increased funding for employment services. Although the additional services might still benefit those who would otherwise leave the rolls for work on their own, they will not likely produce benefit savings for SSA for the same reason, unless they lead to earlier exit or longer duration off the rolls. As we discuss further in the last section, more recent cohorts have left the rolls at lower rates than the 1998 cohort (see below), so the potential for providing additional services to beneficiaries who would leave the rolls without them is likely somewhat lower than the 1998 award cohort statistics would suggest.

The small share of the 1998 cohort (18 percent) who left the rolls for work after service receipt might suggest to some that additional expenditures will at best result in only small benefit reductions, even if received by beneficiaries who would otherwise remain on the rolls. It would be premature, however, to draw this conclusion on the basis of this finding alone. SSA's payments to service providers depend on the number of months the beneficiary is off the rolls or the extent to which he or she achieves earnings that might lead to months off the rolls. TTW has increased incentives for providers to help their beneficiary clients exit and remain off the rolls for a long time; that could lead to more months off the rolls than we found for the 1996 cohort.

5. Implications for BOND and Other Employment Initiatives

Several of our findings have implications for BOND, which is scheduled to start in 2010. BOND will test a policy to reduce a beneficiary's DI benefits by \$1 for every \$2 of countable earnings above SGA, once the beneficiary completes the TWP and grace period months, rather than suspending and eventually terminating benefits.

Based on the 1996 award cohort, we would expect that, in the long run, at least 6 percent of new beneficiaries would use the offset—the percent off the rolls for at least a month because of work under current law. The utilization rate for new beneficiaries under the age of 40 is likely to be higher than 16 percent. As discussed above, suspensions for work in more recent cohorts are somewhat lower, holding time since award constant, so these projections might be somewhat high, but they assume that the offset does not induce more beneficiaries to complete the TWP and achieve countable earnings above SGA.

The findings also suggest that most beneficiaries who use the offset will likely do so within their first five years on the rolls. This implies that the long-run impacts of BOND might be quite different than those observed in the demonstration. Based on the draft design for BOND, the demonstration will offer the offset to randomly selected beneficiaries who happen to be on the rolls during a window of a few months duration. It will exclude former beneficiaries who left the rolls for work in recent years, but who would likely have used the offset and stayed on the rolls, with partial benefits, had it been available to them. Hence, the number of eligible beneficiaries who use the offset during the demonstration is likely to be substantially smaller than those would use it in the long run.

The long-run impact of the offset on benefits savings will also likely be smaller than the impact found during the demonstration, because many of the long-run counterparts of those who will be ineligible for the demonstration only by virtue of the fact that they have already

left the rolls for work will be on the rolls, receiving partial benefits. This finding reinforces the importance of one feature of the demonstration design—the plan to offer the offset to a disproportionately large number of beneficiaries who have been on the rolls for three or fewer years (too short a period for their benefits to have been terminated for work). It will allow the evaluators to more precisely estimate utilization and impacts for those who have recently entered DI, and those estimates can be used to project the long-run impacts.

Finally, the duration of exit for work—230 years off the rolls for work per thousand beneficiaries in the 1996 cohort over a 10-year period—implies that the long-run potential for a benefit offset to reduce aggregate benefit payments might be limited. The reason is that, under the offset, these beneficiaries would have received partial payments for this duration, as opposed to zero payment under the current law. To illustrate the possible magnitude of this implication, we provide a hypothetical scenario, where the 1996 cohort had been eligible for the offset. We assume that during the same months off the rolls, the beneficiaries would have received partial payments that on average equaled half of the mean December 2008 disabled worker benefit (after indexing). The total amount of these payments over 10 years would have been \$868 million.³⁵ For the offset to be benefit-neutral relative to current law (i.e., not affect total SSA payments to the cohort), the offset would have had to induce additional beneficiaries exit for work or longer duration off the rolls, to achieve equal reductions in benefit payments during other months.

More generally, longitudinal statistics show that the number of months spent off the rolls for work under current law is a non-trivial percentage of all months spent on the rolls over the first 10 years after award. To produce benefit savings for SSA, any initiatives to increase months off the rolls for work would have to offset any additional payments made for the support of beneficiaries in months they would have been off the rolls in the absence of the initiative; in evaluation terminology, such payments represent a “base” that other savings will have to “buy,” or offset, to achieve benefit neutrality. BOND illustrates this point, but it also applies to TTW to the extent that SSA makes Ticket payments for some months in which Ticket participants would have been off the rolls if they had not assigned their Tickets. This fact may have been obscured by the common use of cross-sectional statistics to characterize exit for work under current law; the share of each cohort that eventually leaves the rolls for work is much larger, and many remain off the rolls for a long time.

Initiatives that are targeted more narrowly at those who would not leave the rolls for work under current law, and/or at reducing their benefits during the months in which they currently receive full benefits, will have a smaller base to buy, but it may be very difficult to narrow the target of such initiatives in this manner without making them ineffective. SSA

³⁵ The mean benefit for disabled workers in December 2008 was \$1,063 (SSA July 2009), there were 591,493 in the 1996 award cohort (Exhibit III.1), and they spent the equivalent of 230 years per thousand beneficiaries off the rolls for work from 1997 through 2006. We calculated the value of their partial benefits in these years under the offset in the hypothetical example as $.5 \times \$1,063 \times 230 \times 12 \times 591,493/1,000 = \$867,684,741$.

could, for instance, prohibit ENs from making cash payments to their participant clients, because such payments are attractive to beneficiaries who would exit on their own, but such payments might also be a very efficient means to provide other beneficiaries with the resources and incentive they need to exit the rolls for work. As another example, initiatives could be targeted at only those who have been on the rolls for at least five years, so that most who would exit the rolls on their own would already have done so, or at only those who are over the age of 50, who rarely exit for work under current law. But large shares of those who recently entered and those who are relatively young return to work without exiting, and assistance targeted at these individuals might be relatively effective in reducing benefits or increasing time off the rolls for work.

We next consider the experience of more recent cohorts. As will be seen, statistics from the cohorts that entered in 2000 and later suggest that the base that employment initiatives must buy to achieve benefit neutrality is somewhat smaller than the statistics for the 1996 cohort would suggest.

B. MORE RECENT COHORTS

The next three award cohorts (those with benefits awarded between 1997 to 1999) had higher employment rates than the 1996 cohort, holding years since award constant, but the 2000-2002 award cohorts experienced lower employment rates early on, most likely reflecting the downturn in the business cycle. Rates of TWP completion, first suspension for work, and termination for work also declined substantially for the 2000 to 2002 cohorts, holding years since award constant. By the sixth year after award, cumulative years off the rolls for work per thousand beneficiaries for the 2001 cohort were 28 percent lower than for the 1997 cohort (the cohort with the highest value for this statistic).

Policy changes and the economy likely played a role in the decline of TWP completion and months off the rolls for work. It is quite evident that the 2001 increase in the TWP income level reduced the percentage having completed the TWP within a given number of years after award—by as much as 2.1 percentage points (or 35 percent) by the fourth year after award. For some beneficiaries, this change might represent a delay in TWP completion as well as benefit suspension for work (if any). The 1999 SGA increase might also have contributed to fewer months off the rolls for work, because benefits would no longer be suspended in EPE months during which earnings were above the old SGA, but below the new one. This effect, however, was not evidenced in this paper. The 2002–2004 rollout of TTW might have had a countervailing effect for the later cohorts, but any effect was likely small; previous studies (Stapleton et al., 2008) did not detect an impact on beneficiary earnings and benefit payments after the rollout.

It is unfortunate that comparability issues undermine any attempt to assess whether the statistics for the 1996 and later cohorts presented here represent a substantive change in beneficiary work activity and exits for work relative to the statistics for the 1980-81 New Beneficiary Survey/New Beneficiary Follow up cohort. These statistics (see Section II) are broadly similar but somewhat lower than what we found. It would be interesting to know how earlier cohorts fared relative to more recent cohorts. For instance, prior research has suggested that eligibility expansions since 1980-81 and expansion of DI work incentives (for

example, the 1988 increase in the length of the EPE, 1990 and 1999 SGA increases, 2001 TWP income increase, and 2002 introduction of TTW) have increased the sensitivity of awards to layoffs caused by recessions, industrial restructuring, or other economic factors, with more workers induced to apply because of such layoffs than in the past (Autor and Duggan 2003). That would suggest that the share of new beneficiaries who are capable and interested in returning to working is larger today than in the 1980s. An analysis of the administrative data for earlier cohorts might substantially improve our understanding of how past programmatic and other changes affect the number of awards to individuals who return to work and influence the extent to which new beneficiaries eventually exit the rolls for work. Such an analysis might also provide information about the extent to which possible future policy changes, such as a benefit offset, might induce DI entry by workers with disabilities who would benefit from an offset.

It would also be interesting to examine how the return-to-work activities of future award cohorts change in response to programmatic and economic factors. Those who receive their awards in 2009 will be the first full award cohort to receive tickets under the July 2008 TTW regulations. Whether they enroll for services at substantially higher rates than past cohorts will be telling. Effects on earnings and benefits are likely to take much longer to emerge, however, because the 2009 cohort is entering DI at the bottom of a business cycle that appears to be the worst since the Great Depression. Given the experience of those who entered during the much weaker downturn from 2000 to 2002, it seems likely we will see a substantial decline in the employment rates of new beneficiaries, even if service enrollment increases. Any contributions of the new TTW regulations to improvements in return-to-work outcomes might well be obscured until the economy substantially recovers and later cohorts receive their awards.

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APPENDIX A

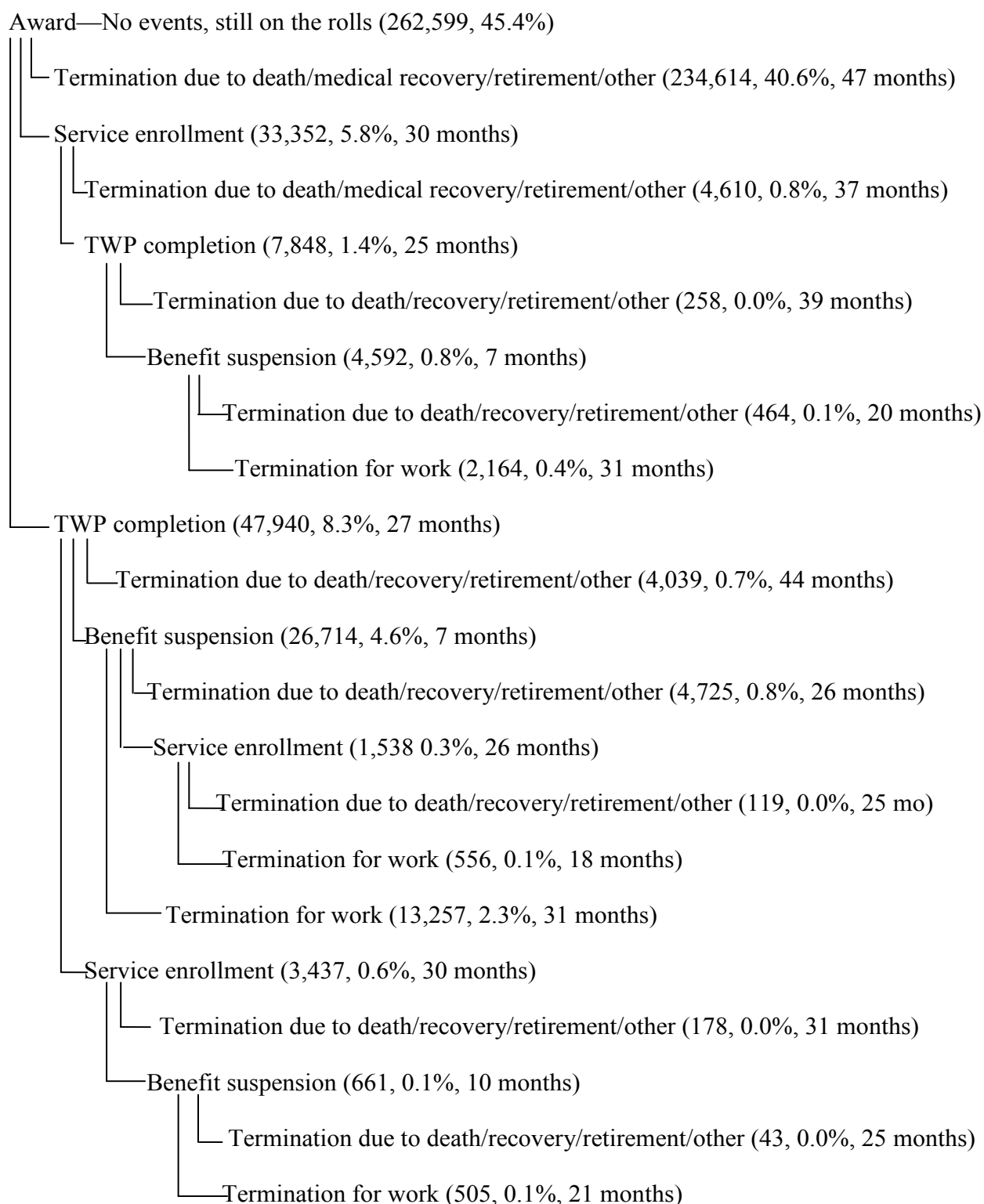
ADDITIONAL SUPPORTING EXHIBITS

Exhibit A.1. Number of Beneficiaries by Cohort by State, 1996-2005

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
US	591,493	562,998	578,504	590,023	597,925	665,135	719,109	747,777	762,234	785,405
AK	834	888	1,158	921	1,040	1,078	1,156	1,176	1,124	1,215
AL	13,912	13,275	13,193	14,856	15,174	17,942	19,696	18,994	19,924	20,919
AR	8,174	8,048	7,926	8,411	8,441	9,863	11,456	12,288	12,653	12,990
AZ	9,064	8,650	9,570	9,793	10,999	12,387	13,161	14,184	14,523	14,115
CA	52,643	49,123	53,154	53,406	52,585	57,646	64,538	70,262	71,230	71,300
CO	7,141	6,281	5,803	5,940	5,479	6,505	6,641	7,267	7,392	8,064
CT	7,472	6,313	6,335	6,570	6,924	7,192	6,872	7,485	7,375	7,413
DC	1,316	1,103	1,154	1,039	928	980	1,160	1,271	1,312	1,243
DE	1,704	1,709	1,943	1,889	1,930	2,100	2,272	2,502	2,813	2,497
FL	36,104	35,410	36,025	35,314	33,893	38,661	39,273	41,128	39,364	44,167
GA	18,276	18,035	18,006	18,257	18,479	19,913	20,932	21,592	20,517	21,160
HI	1,987	1,903	1,942	2,208	2,238	2,241	2,380	2,298	2,439	2,454
IA	5,214	4,967	5,248	5,215	5,585	6,526	6,384	5,967	6,512	6,832
ID	2,158	2,127	2,383	2,486	2,507	2,748	3,318	3,357	3,334	3,643
IL	21,331	20,578	20,742	21,215	21,071	23,384	27,261	26,955	26,765	27,111
IN	12,134	12,178	13,003	12,617	12,336	13,449	16,048	16,782	16,552	17,074
KS	5,152	4,431	4,740	5,107	5,337	5,442	5,618	6,001	6,626	6,338
KY	14,466	12,786	14,068	12,989	13,723	14,856	16,187	16,925	17,270	16,775
LA	9,389	9,034	9,262	9,401	10,544	12,043	13,711	13,342	14,458	14,906
MA	14,988	13,777	13,461	13,503	13,952	14,261	15,932	16,754	17,543	17,752
MD	8,508	8,708	9,183	8,879	9,646	10,433	10,081	10,992	12,252	12,444
ME	4,277	3,674	3,619	3,752	3,908	3,946	4,740	5,169	4,751	4,759
MI	20,978	21,432	21,090	21,112	22,858	25,432	27,938	27,819	28,103	28,980
MN	7,430	7,554	7,619	8,024	8,227	9,382	10,172	10,503	10,893	10,569
MO	14,452	12,606	13,411	14,600	15,777	16,603	17,053	17,589	19,000	18,918
MS	9,063	8,729	9,079	9,534	9,789	11,024	10,924	10,913	11,261	12,108
MT	1,693	1,514	1,716	1,652	1,731	2,011	1,982	2,047	2,044	2,181
NC	23,689	22,064	22,913	23,198	22,443	24,410	26,690	27,780	27,064	27,389
ND	953	871	893	963	964	1,065	1,159	1,104	1,165	1,203
NE	3,033	2,785	3,071	3,195	3,251	3,580	3,604	3,778	4,118	3,924
NH	2,756	2,432	2,362	2,725	2,684	3,138	3,576	3,782	3,803	4,318
NJ	15,546	16,251	15,009	17,679	16,246	16,779	17,479	19,242	19,803	20,171
NM	3,252	3,112	3,202	3,279	3,534	4,046	4,953	5,110	5,567	6,225
NV	3,474	3,188	3,353	3,707	4,180	4,899	5,722	5,702	5,824	5,037
NY	47,084	40,790	40,702	40,699	40,301	44,087	43,837	44,038	49,516	50,023
OH	21,504	21,426	21,596	20,827	21,105	23,866	24,887	27,011	28,329	29,140
OK	7,398	7,053	7,176	7,672	8,040	9,340	10,210	11,171	11,773	12,392
OR	6,200	5,736	6,014	7,217	6,578	7,768	8,020	8,351	8,128	8,480
PA	25,013	25,012	26,789	26,906	29,064	33,225	33,721	35,977	36,053	37,453
PR	11,774	11,387	11,434	10,756	11,740	11,881	11,778	11,329	9,804	10,477
RI	2,863	2,477	2,641	2,792	2,748	2,871	2,983	3,190	3,492	3,344
SC	11,872	11,401	11,295	11,573	12,207	13,251	13,810	14,256	13,925	14,257
SD	1,315	1,299	1,256	1,191	1,210	1,363	1,400	1,323	1,443	1,511
TN	16,036	14,896	15,802	16,559	15,368	16,692	18,841	19,527	19,735	19,964
TX	31,079	29,136	30,259	30,516	30,140	38,477	49,448	51,154	50,331	55,092
UT	2,430	2,240	2,435	2,466	2,611	2,868	3,214	3,024	3,310	4,068

Exhibit A.1 (cont'd)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
VA	14,550	14,197	14,941	15,705	15,583	16,705	17,145	18,595	19,575	21,158
VT	1,529	1,330	1,347	1,432	1,398	1,544	1,640	1,703	1,777	1,892
WA	10,306	10,281	9,819	10,903	11,789	12,748	13,826	14,441	14,773	16,013
WI	9,307	8,718	8,924	8,889	9,595	10,779	12,504	12,958	13,170	12,877
WV	6,594	6,412	6,838	6,829	6,866	8,210	8,543	9,018	8,740	8,462
WY	877	783	849	841	805	946	871	975	1,149	1,122
Other	1,199	2,888	2,751	2,814	2,374	2,549	2,362	1,441	1,836	1,486

Exhibit A.2. Paths from Award to Exit for the 1998 DI Cohort (Total N: 591,493)

Note: Each branch represents a path with different end events. Numbers in parenthesis represent count and percent of beneficiaries on the path and the average length of time they took to go from the previous event to the end event.

Exhibit A.3. Cross-State Variation in Service Enrollment^a and Years off the Rolls because of Work per 1,000 Awardees in the 1996 Cohort as of 2006

	Cumulative Percentage Enrolled in Services ^a	Cumulative Years Off the Rolls Because of Work per 1,000
SD	13.2	389
MN	12.1	360
ND	11.4	232
IA	11.3	247
WY	10.3	277
WI	10.1	288
DE	8.4	256
CO	7.3	311
VT	15.8	253
NH	10.8	308
UT	10.8	282
NE	9.2	247
MA	8.9	333
KS	7.7	278
AZ	7.0	238
MI	5.9	251
ID	13.3	255
MT	13.9	253
AK	9.5	254
WA	8.0	279
IL	6.2	301
CT	6.8	236
DC	10.9	339
OH	7.5	259
MO	8.5	187
ME	9.1	207
OR	8.7	239
IN	8.0	222
NV	7.5	232
NM	7.5	167
CA	6.1	242
RI	6.5	230
MD	7.0	236
All	6.7	215
NC	5.7	165
PA	6.9	214
NJ	6.8	237
NY	7.7	252
FL	5.5	187
TX	6.9	193
VA	5.6	189
AR	5.0	130
LA	4.3	140
OK	6.4	134
GA	4.2	157
TN	5.4	146
SC	4.2	122
HI	7.0	165

	Cumulative Percentage Enrolled in Services ^a	Cumulative Years Off the Rolls Because of Work per 1,000
KY	5.6	130
MS	3.9	152
AL	4.6	116
WV	4.4	109
PR	2.4	28

^a Service enrollment statistics exclude SVRA enrollments that closed before FY 1998, because RSA 911 closure data were not available for earlier years.

Exhibit A.4. Cumulative Percentage Employed Since the Second Post-Award Year, by Award Cohort, 1998–2006

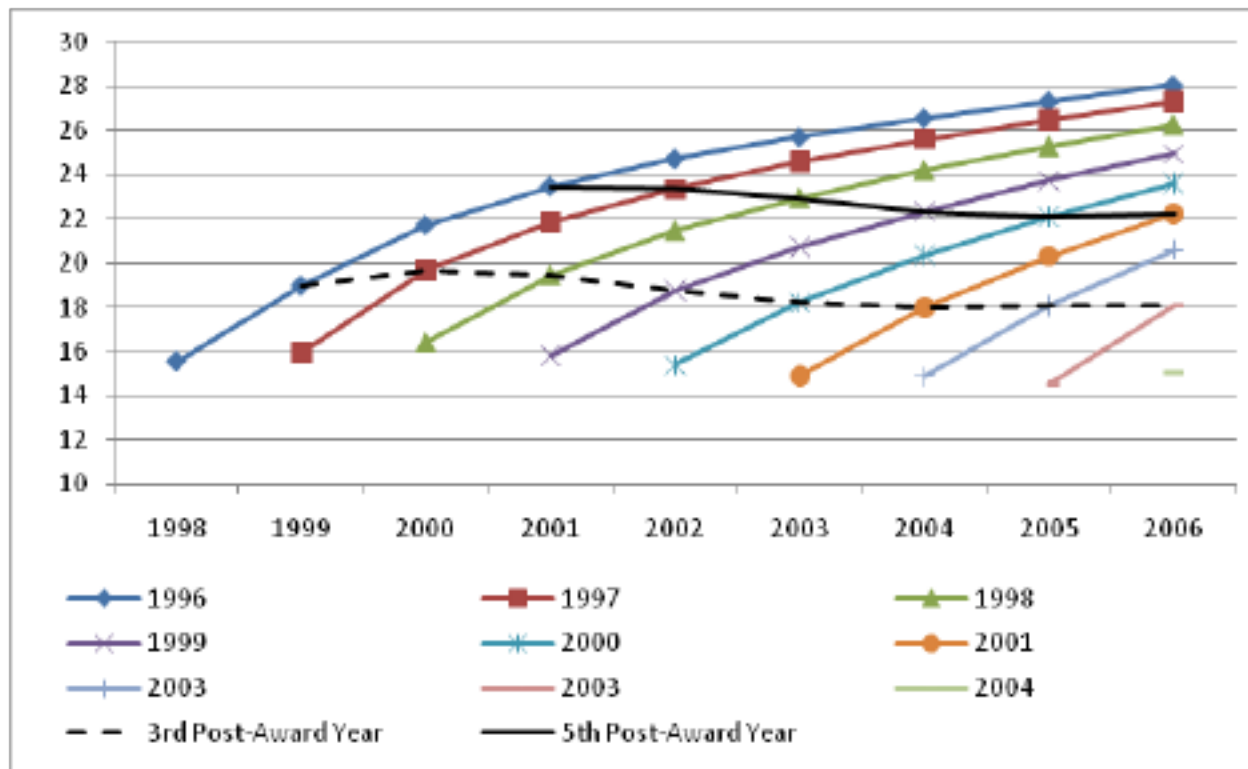


Exhibit A.5. Cumulative Longitudinal Work Incentive Statistics for 1996 Awardees by Age Group (Unweighted), 1996–2006

	TWP + 36 Months	Terminated Due to Work	Suspended Due to Work for at Least 1 Month	Completed TWP
Age 18-39				
1996	0.0	0.0	0.3	1.5
1997	0.0	0.1	2.5	5.9
1998	0.0	0.3	5.7	9.9
1999	1.5	0.9	8.3	13.1
2000	5.8	2.8	10.3	15.5
2001	9.8	4.7	11.9	16.7
2002	12.9	6.1	13.0	17.5
2003	15.3	7.4	13.9	18.1
2004	16.5	8.3	14.6	18.8
2005	17.3	9.0	15.2	19.4
2006	17.9	9.5	15.6	20.0
Age 40-49				
1996	0.0	0.0	0.1	0.7
1997	0.0	0.0	1.2	2.8
1998	0.0	0.1	2.7	4.7
1999	0.6	0.4	3.8	6.2
2000	2.7	1.2	4.7	7.4
2001	4.6	2.0	5.4	8.1
2002	6.0	2.6	5.9	8.5
2003	7.2	3.1	6.3	8.9
2004	7.9	3.5	6.6	9.3
2005	8.3	3.8	6.9	9.7
2006	8.7	4.0	7.1	10.0
Age 50-61				
1996	0.0	0.0	0.1	0.4
1997	0.0	0.0	0.6	1.5
1998	0.0	0.0	1.1	2.2
1999	0.4	0.1	1.4	2.7
2000	1.4	0.4	1.6	3.2
2001	2.1	0.6	1.8	3.4
2002	2.6	0.7	2.0	3.5
2003	3.0	0.8	2.1	3.6
2004	3.2	0.9	2.1	3.7
2005	3.4	0.9	2.2	3.8

Exhibit A.5 (cont'd)

	TWP + 36 Months	Terminated Due to Work	Suspended Due to Work for at Least 1 Month	Completed TWP
2006	3.5	1.0	2.2	3.9
Age 62-FRA				
1996	0.0	0.0	0.0	0.1
1997	0.0	0.0	0.2	0.5
1998	0.0	0.0	0.3	0.7
1999	0.1	0.0	0.3	0.7
2000	0.5	0.0	0.3	0.7
2001	0.6	0.0	0.3	0.7
2002	0.7	0.0	0.3	0.7
2003	0.7	0.0	0.3	0.7
2004	0.7	0.0	0.3	0.7
2005	0.7	0.0	0.3	0.7
2006	0.7	0.0	0.3	0.7