

Return of Disabled-Worker Beneficiaries to the DI Program: Some Insights From the New Beneficiary Followup

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Beneficiaries in the DI program may experience a recovery termination. What factors affect their reentitlement to DI benefits? Data from the New Beneficiary Followup was used to model return to the DI program. Those former beneficiaries who had vocational or job training and paid work after the recovery termination showed a lesser tendency to return to the DI program. Younger individuals and those in the highest primary insurance amount quartile also showed a lesser tendency to return.

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Introduction

Growth in the Social Security Administration's (SSA's) Disability Insurance (DI) program is a matter of concern to program administrators, members of Congress, and the general public. In 1996, there were 4.4 million disabled-worker beneficiaries and \$44.2 billion in benefit payments from the DI Trust Fund (Social Security Administration 1997). As awards increase, program growth will continue unless offset by other events, such as recovery terminations and sustained independence from the DI program.

A study of DI beneficiaries first entitled to benefits in 1980-81 found that approximately one-third of those who had experienced a recovery termination had also returned to the DI program by the end of the study period (Muller 1992). An earlier article (Hennessey and Dykacz 1989) has examined the fate of a 1972 cohort of newly entitled disabled-worker beneficiaries; some 11 percent were projected to leave the DI program due to recovery, 36 percent projected to leave due to death, and 53 percent due to conversion to the retirement program at age 65. Of those who recovered, 43 percent were projected to return to the DI program (Dykacz and Hennessey 1989). Of interest is the insight additional information in the New Beneficiary Followup (NBF) may provide on the tendency to become reentitled. This article examines the effect of many of the factors or covariates used in the analysis of the 1972 cohort on the reentitlement tendency, along with the effect of marital status, knowledge of work-incentive provisions, vocational rehabilitation provisions, pension income, and work history obtained through survey data.

Data

Data have been obtained from the 1991 NBF (Social Security Administration 1993). This sample data set of 6,820 cases consists of 3,881 DI

beneficiaries originally interviewed in the New Beneficiary Survey (NBS) in 1982 and an add-on group of 2,939 individuals for whom earnings were posted to the records at some time after entitlement to disability benefits. The purpose of the add-on group was to increase the number in the sample experiencing work attempts and possibly recovery terminations. A large enough sample would be available to examine job patterns, the effect of DI program provisions on work attempts, reasons for returning to work, the effects of workplace accommodations, and the recovery termination event (for more details, see Hennessey and Muller 1994).

The population sampled included all disabled-worker beneficiaries who were initially entitled between June 1980 and June 1981 and who were awarded DI benefits before May 1982, subject to the exclusions listed below. These same exclusions were made in recent articles examining work attempts and rehabilitation efforts and were considered appropriate for this study (Hennessey and Muller 1994, 1995).

A brief description of the exclusions and reasons follow:

- (1) Persons who do not acknowledge receipt of benefits near the date of initial entitlement.

Respondents were asked to verify the date of entitlement at the beginning of the interview. If, after probing by the interviewer, the respondent could not verify the date of entitlement, certain questions regarding work attempts were skipped. If the respondent could not verify the approximate entitlement date, answers to other questions having a time dimension may not be reliable.

- (2) Persons who had a proxy interview.

There is some doubt whether answers to questions involving marital history and knowledge of program provisions can be answered accurately by a proxy.

- (3) Persons not having the date of *initial* entitlement in the time interval from June 1980 to June 1981.

For some persons in the original NBS conducted in 1982, the disability entitlement in the time window, June 1980 to June 1981, was not the first disability entitlement. It is uncertain whether the second or third disability entitlements are comparable to the first disability entitlement. These cases are excluded in order to be consistent with other analyses of disability entitlements.

- (4) Beneficiaries in the add-on group whose date of award was after April 1982 (retroactive cases).

These cases may be systematically different from awards in the prior time window; for example, they may be the result of a lengthy appeals process.

- (5) A few persons in this study whose date of death is before June 1992, to be consistent with prior analyses.

Most excluded individuals in this study result from the first four items. Of the 6,820 cases in the NBF data set, 4,405 were kept after these exclusions.

SSA's Master Beneficiary Record (MBR) was attached to all records in the NBF data set. The MBR is the source of information regarding recovery terminations from the program, deaths of beneficiaries, and reentitlement (that is, the return to the DI program). Additional information regarding important dates, such as the date of birth, date of entitlement, date of return to the program, and periods of suspense, are contained in the MBR. From the MBR, it can also be determined whether a person has experienced a recovery termination, is deceased, or has reached retirement age, along with the times of these events.

After the above exclusions, any person who experienced a recovery termination prior to June 1993 was selected. June 1993 is the date the MBR was obtained and attached to the NBF survey information. A recovery termination means termination from the DI program as a result of an individual meeting program requirements for a medical termination (medical recovery termination) or an individual doing work above substantial gainful activity (work recovery termination). Only official recovery terminations are considered here. If an individual moved into an extended period of eligibility (EPE) due to work, the individual was put into suspense status and not officially terminated from the DI program. There are 1,481 recovery terminations in the sample.

Next Event After the Recovery Termination

Of interest is the next event after a recovery termination. A person may become reentitled, that is, return to the DI program and to disability beneficiary status,¹ may die, or may retire. For many individuals, none of these events has occurred during the observation period. There was only one death in the sample—that is to be expected because persons had to be alive at the time of the NBF interview in 1991 and also before June 1992 (one of the exclusion criteria). In this article, retirement is defined as reaching age 62, when early retirement is possible.²

We can calculate the percentage of beneficiaries who have a recovery termination and return to the DI program in the time observed, but this percentage is an underestimate of the percent who will eventually return to the DI program if observed long enough. In the population of beneficiaries used in these studies, 14.0 percent (19,231 out of 137,144) had a recovery termination in the time observed and, of these, 27.7 percent (5,328 out of 19,231) returned to the DI program as their next event. These are called weighted percentages and estimates because they are calculated using the sampling plan of the NBF survey and refer to the underlying population. The percent in the sample data that returned to the DI program (24.6 percent) is similar to the percentage (27.7 percent) estimated for the population data.

The next possible event after the recovery termination is reentitlement, retirement, or death. However, individuals could

still be out of the DI program and not experience one of these events in the time observed. The observation period for an individual begins at the recovery termination date. The observation period ends in June 1993 (the date the MBR was obtained), or when the person returns to the program, retires (that is, reaches age 62), or dies. The observation periods in the data set ranged from 1 month to approximately 12.5 years.

Sample Data

Sample data percentages are used in the next sections (called unweighted data), instead of population percentages for the following reason. Some 16 individuals in the sample of recovery terminations have extremely high weights of 100 or more. Presumably these individuals reside in rural areas, which were not sampled as heavily as urban areas, and they introduce a great deal of variability into population estimates. They are different from individuals with more moderate weights in that a greater percent return to the program and a greater percent are in the lower benefit groups. The purpose of this analysis is to explain the effect of program provisions and other covariates on the tendency to become reentitled, rather than to create estimates for a population of disabled-worker beneficiaries. A descriptive portrayal of the analysis will be accomplished through examination of certain graphs that describe the rate at which persons return to the DI program (survival curves).

Covariates

The covariates or factors are the explanatory variables in the analyses. We wish to determine which covariates are associated with an increase or decrease in the tendency to return to the DI program, that is, can an increased tendency to return to the program be “explained” by a covariate?

Gender and Race

Persons were classified as female or male according to SSA records from the MBR. In the sample, 29.8 percent are female and 70.2 percent are male. Individuals were classified as nonwhite (20.0 percent), or white (80.0 percent). These variables were included to determine the impact gender and race play in the tendency to return to the DI program.

Age

Age was computed at the time of recovery, using the birth date from SSA records. In the sample, the median age is 37.3 years. At the time of their recovery, 44.2 percent were younger than age 35; 35.5 percent were aged 35-49, and 20.4 percent were aged 50-61. These definitions of the age groups are the same as the definitions used in the study of the post-recovery period for a 1972 cohort (Dykacz and Hennessey 1989). Of interest is whether older, or perhaps younger, individuals exhibit a stronger tendency to return to the DI program.

Years of Education

The educational level attained by a person plays a role in

the decision to award benefits. Educational level was determined from questions on the NBF regarding years of education. The educational level is the highest grade of school completed when the initial entitlement began, between June 1980 and June 1981. The most common highest grade completed was the 12th grade (37.9 percent). The percent of those who completed 13 years or more of education was 27.3 percent. For 14.5 percent, the highest grade completed was the 8th grade, and, for 17.8 percent the highest grade completed was 9th, 10th, or 11th. The educational level was unknown for 2.4 percent. It is not clear how education may affect an individual’s tendency to return to the DI program. For example, better-educated individuals may be more severely disabled because their higher level of education is a vocational factor in the decision to award benefits; thus, they may show a greater tendency to return to the DI program. On the other hand, more educated individuals may be better able to adjust to new work situations and may show a lesser tendency toward reentitlement.

Primary Insurance Amount

The primary insurance amount (PIA) is the monthly benefit amount payable to the worker upon entitlement to disability benefits. It is based on an individual’s taxable earnings averaged over a working lifetime to yield a monthly benefit that partially replaces the earned income lost because of retirement, disability, or death (Social Security Administration 1997). The PIA used in this analysis is the PIA effective in June 1981, which was directly on the MBR record for most individuals. The PIA is a function of the number of years of covered earnings under the DI program before the onset of disability and the level of earnings for those years. It serves as a rough proxy for the level of lifetime earnings and gives an indication of economic status. It also represents the value of the benefits package. The PIA used here serves to compare the benefit amount of individuals at the same point in time. The median PIA for this sample is \$418. Of interest is whether PIA affects the reentitlement tendency.

Individuals were originally classified into four PIA groups using approximate quartiles of the sample data. Because there were no differences among the lowest three PIA groups regarding the reentitlement tendency, PIA was categorized into two groups for descriptive purposes. The highest quartile is the high PIA group, and the lower three quartiles combined form the low PIA group. Thus, the high PIA group consists of individuals with a PIA of at least \$561, and the low PIA group consists of individuals with a PIA of less than \$561. The sample percent in the high PIA group is 25.0 percent.

Marital History

Because the NBF contains enough detailed questions regarding marriage, divorce, and widow/widower status, it was possible to construct a marital history over time, thus detailing changes in the marriage status over time. At each time, individuals can be classified as single or married. This variable is intended to measure any effect marital status plays in the ability

to remain out of the DI program. It is not clear, a priori, how marital status may affect the reentitlement tendency. At the time of the recovery termination, 59.3 percent were married and 40.7 percent were not married.

Knowledge of Program Provisions

Survey respondents were asked if they were aware of various work incentive provisions and when they first became aware of the provisions. The first work incentive provision was the trial work period (TWP), which allows a person to work for a period of time without losing benefits. Respondents were also asked about their knowledge of the EPE, which provides for automatic reinstatement of benefits if a work attempt fails, and about their knowledge of extended Medicare coverage. There was also an "other" category for knowledge of any other work provisions. Does knowledge of these provisions have an effect on the tendency to return to the DI program after a recovery termination? The expectation is that knowledge of these work provisions promotes a recovery termination and helps to sustain it. In the sample, 17.7 percent had knowledge of the TWP before a return to the DI program; 13.6 percent had knowledge of the EPE; 9.8 percent had knowledge of extended Medicare coverage; and 2.1 percent had knowledge of other provisions.

Vocational Rehabilitation Provisions

Survey respondents also replied to questions regarding whether they received rehabilitation services and when they first received these services. The services were physical therapy, vocational or job training, job counseling, assistance in job placement, general education, or other rehabilitation services. Do these services have a lasting impact in helping persons to sustain their recovery terminations? In the sample, 28.1 percent had physical therapy before a return to the DI program; 15.4 percent, vocational or job training; 13.6 percent, job counseling; 10.4 percent, assistance in job placement; 8.3 percent, general education; and 5.8 percent some other form of rehabilitation service.

Pensions

Additional income from pensions may play a role in the decision to reapply for DI benefits after a recovery termination. Questions about the receipt of pension income were asked in several places in the survey. Because specific amounts of pension income after a recovery termination could not be determined, a simple indicator of evidence of pension income prior to the next event of interest was created from the survey data. For 22.1 percent in the sample, there was evidence of pension income.

Work History

Survey respondents were asked if they worked for pay in the years 1983-91. A variable was created to indicate evidence of

paid work in any year after the recovery termination and prior to the next event. The percent of individuals who claimed to have done paid work in some year after the recovery termination and prior to the year of the next event of interest was 50.2 percent.

Primary Diagnosis of Medical Impairment and Health

Primary diagnosis of the medical impairment associated with the disability was not entered in the MBR administrative records at the time persons in this sample entered the DI program (June 1980 to June 1981) and was not available to include in this article. The health of an individual is not static, but changes with time. Despite the NBF containing health-related questions, it is not possible to construct a time-line of health status. Although the covariates of underlying medical impairment and health status are potentially very important, we have not been able to include them in this analysis.

Medical Recovery Termination

An attempt was made to determine whether the recovery termination was due to a medical termination (meeting program requirements that the underlying medical condition had improved enough for a person to sustain work) or work termination (engaging in substantial gainful employment despite a serious medical impairment). Because the code for both types of recovery terminations was the same, we could not differentiate between medical and work recoveries. To determine whether the decision for the recovery termination was a medical or work termination, data from individual paper folders would need to be examined.

Methodology

The primary purpose of this article is to explore which factors affect return to the DI program for those who have already left the program through a recovery termination. The initial recovery termination is the starting point of the process for each person. As time progresses, individuals may or may not return to the program for various reasons—the person may remain out of the DI program through sustained work or medical recovery, the person may reach age 62 (considered the retirement age in this article), or the person may die. This article only observes persons until June 1993, so that any event occurring after this date would not be included in the analysis. An observation could be right-censored; that is, at the end of the observation period, the person had not returned to the DI program, reached age 62, or died. Thus, each person or observation has a "window of time." The beginning of the window is when the person left the DI program through a recovery termination. The end of the window is the time of the next event of interest or the end of the observation period in June 1993.

Some of the factors or covariates that may influence return to the program are time-dependent, that is, they change with time. Marital status, knowledge of program provisions, rehabilitation services, and paid work history can vary over time. A

model that can accommodate right-censored data and time-dependent covariates is the widely used proportional hazards or Cox regression model (Cox 1972; Kalbfleisch and Prentice 1980; Allison 1985). An essential feature of this model is the hazard function, which measures the tendency or propensity of an individual to return to the DI program. This model enables us to assess the impact that factors or covariates have on this tendency to return to the DI program.

The following example illustrates the need to use time-dependent covariates. Persons in the survey were asked whether they had received vocational or job training and when they had first received the training. For 12 persons in the sample, the vocational or job training was received after (not before) they returned to the DI program. For these individuals, the receipt of this training could not have had an impact on their returning to the program.

After the recovery termination, the individual may experience many events, such as reentitlement, retirement, or death. Other events compete with reentitlement as the next event of interest, and thus we have a “competing risk” situation (Kalbfleisch and Prentice 1980; Allison 1985). Each individual is observed for his “window of time,” from the recovery termination to the occurrence of some next event of interest. Of principal interest here is the effect of various covariates such as age, marital status, or rehabilitation provisions on the reentitlement tendency.

Knowledge about the reentitlement tendency and how various factors affect it should help to fine-tune governmental provisions aimed at assisting persons to stay off the disability rolls.

A lesser reentitlement tendency, however, does not necessarily mean the individual is less likely to ultimately return to the DI program. For example, if older, compared with younger persons, show a greater tendency to return to the DI program within the observation period, the probability of an older person returning may not necessarily be greater than that of a younger person returning. The tendencies toward reentitlement and death compete with each other, and the net result, in terms of the probability of next becoming reentitled or next dying, depends on their relative strengths. Recovered beneficiaries in the older age groups might exhibit a greater tendency to die, compared with those in the younger age groups. Older recovered beneficiaries may also exhibit a greater tendency to become reentitled. The proportion of older individuals who die or become reentitled as the next event in the post-recovery process depends, in part, on the relative strengths of these tendencies.

The SAS procedure, “PHREG” (SAS Technical Report 1992), was used for the analyses. An examination of the parameters in the model reveals whether the factor or covariate has an effect on the tendency to return to the DI program. (For the types of equations used in the model, see Technical Appendix A, Hennessey and Muller 1995.)

Overview

A table of percentages can be an oversimplification of the process for the following reasons. It does not take into account that the observation periods are different for different individu-

als in the data set, that some of the covariates change with time, and that the effect of the covariate on the reentitlement tendency may vary with time. To determine the impact of the covariates on the reentitlement tendency for this population, the use of the Cox regression model is more appropriate and is presented in the following section.

For descriptive purposes, a graph, called a survival curve, has been constructed from the data. The survival curve was calculated according to the Kaplan-Meier method and using the SAS procedure LIFETEST (Allison 1995; SAS/STAT User’s Guide 1990; Collett 1994). This graph gives, at each time t , the percentage of individuals still not reentitled to the DI program (“surviving”) out of those who are eligible to be reentitled. Individuals who have retired or died before time t are excluded from the percentage calculation at time t . If the survival curve drops dramatically, then many individuals are not “surviving” out of the program, but are returning to it. If the survival curve does not drop, but stays flat, then individuals are “surviving,” that is, they are staying out of the DI program. The graph steps down each time a reentitlement occurs.

Findings: The Cox Regression Model

The Cox regression model, a generalized proportional hazards model, was used to describe the relationship of various covariates to the reentitlement tendency. Each covariate was entered into the model, along with the covariate and a time interaction term (for example, gender-tm), computed by multiplying the covariate with time. This procedure allowed for nonproportionality of the hazard functions for the various covariates. The covariates—marital status, knowledge of program provisions, rehabilitation services, pension income, and work history—were entered as time-dependent covariates because they change over time. The model is comprehensive because all factors are examined together.

Table 1 lists the coefficients, standard errors, and p-values for the Cox model. Time is measured in years, with time=0 the recovery termination date.

If a covariate is statistically significant at the 5 percent significance level in the Cox model, it is noted with a ** sign. If a covariate is marginally significant (that is, the p-value is between .05 and .10), it is noted with a * sign. A positive (and statistically significant) coefficient indicates a greater reentitlement tendency; a negative (and statistically significant coefficient) indicates a lesser reentitlement tendency.

Certain covariates were entered into the model as time-dependent covariates. Indicator variables having a value of “0” or “1” were created as follows: Knowledge of each program provision, such as the TWP, was indicated as a “1” at the time the person claimed to acquire the knowledge. It continued to stay as a “1” as time progressed. Any rehabilitation provision, such as vocational or job training, was indicated as a “1” at the time the person had this provision and continued to stay a “1” as time progressed. The indicator for paid work was for work only from the recovery termination to the next event of interest; work before the recovery termination was not included in this indicator. An indicator for pension income was created to

determine if pension income was present at each time before the next event.

Marital status was indicated by a "1" at time t if the individual was married at time t. Gender was coded using a "1" for male, and race was coded using a "1" for white.

Gender

The coefficients for gender and race at the recovery termination time are not significant, nor are the time interaction coefficients. There is no difference between males and females regarding the tendency to return to the DI program, as well as no difference between the two racial groups (white and nonwhite).

Age at Recovery Termination

The coefficient for age at recovery is positive and marginally significant, indicating that older individuals may have a greater tendency to return to the DI program. Older individuals may have poorer health or be less able to adjust to new work situations.

Chart 1 illustrates the survival curves for the age groups younger than age 35, aged 35-49, and aged 50-61 at the time of the recovery termination. The survival curve for the oldest group (darkest curve) is the lowest, indicating that these oldest individuals are returning more quickly to the DI program. The curve for the youngest group (lightest curve) does not drop as dramatically, indicating that members of the youngest group do not return to the DI program as quickly.

PIA

In the Cox regression model, PIA was treated as continuous. The covariate, PIA, is significant, indicating an effect of PIA on the reentitlement tendency. The coefficient is negative, which shows that an increase in PIA decreases the reentitlement tendency. The interaction term of PIA with time is not statistically significant.

Chart 2 illustrates the survival curves for the two PIA groups, high (at least \$561 per month) and low (less than \$561). The PIA was calculated effective June 15, 1981, and time is measured in years since the recovery termination. The curve for the higher PIA group lies above the curve for the lower PIA group, indicating a lesser tendency to return to the DI program for those in the higher PIA group.

Marital Status

Marital status is entered as a time-dependent covariate, because marital status can change between not married and married over time. The coefficient in the model is not significant, signifying no difference in the reentitlement tendencies between married and single individuals right after the recovery termination. However, the marriage and time interaction coefficient is marginally significant (p-value=0.0563) and positive, indicating that, as time

progresses, married individuals may show a greater tendency to return to the DI program.

Vocational or Job Training

If individuals had vocational or job training before the next event, they had a lesser tendency to return to the DI program. This coefficient is negative and statistically significant in the model. The effect of vocational or job training on the reentitlement tendency, however, diminishes over time because the coefficient of the vocational or job training and time interaction term has the opposite sign.

In chart 3, the curve for those who had vocational/job training is higher than for those who had no such training, indicating that those with vocational/job training show a lesser

Table 1.—Results for the reentitlement tendency

Variable	Coefficient	Standard error	p-value
Gender (1=male).....	-0.1381	0.2328	0.5530
Gender-tm.....	.0549	.0593	.3542
Race (1=white).....	-.1780	.2475	.4719
Race-tm.....	.0657	.0627	.2946
Years of education.....	.0006	.0332	.9859
Education-tm.....	-.0027	.0080	.7335
Age.....	.0170	.0096	.0771*
PIA.....	-.1753	.0794	.0272**
PIA-tm.....	-.0043	.0194	.8251
Age-tm.....	.0035	.0024	.1501
Married.....	-.3379	.2089	.1057
Married-tm.....	.1000	.0524	.0563*
Pension income (1=Yes).....	-.0697	.2718	.7975
Pension-tm.....	-.0175	.0652	.7886
Trial work period (TWP).....	.1022	.4597	.8241
TWP-tm.....	-.0116	.1079	.9144
Extended period of eligibility (EPE).....	-.0969	.5143	.8505
EPE-tm.....	.0588	.1224	.6311
Extended Medicare coverage.....	.4022	.4726	.3947
Medicare-tm.....	-.0278	.1078	.7965
Other provision.....	-.7539	.7368	.3062
Other provision-tm.....	.0998	.1539	.5170
Physical therapy (PT).....	.0375	.2321	.8718
PT-tm.....	.0331	.0543	.5420
Vocational or job training (JT).....	-1.3209	.4366	.0025**
JT-tm.....	.2334	.0886	.0084**
Job counseling (JC).....	.2717	.4172	.5149
JC-tm.....	-.0027	.0922	.9770
General education (GE).....	.1618	.4481	.7179
GE-tm.....	-.0220	.1006	.8272
Job placement (JP).....	.3049	.4898	.5336
JP-tm.....	-.0383	.1020	.7071
Other rehabilitation service.....	.5600	.4358	.1987
Other-tm.....	-.1171	.1062	.2698
Paid work (1=Yes).....	-.2526	.1368	.0648*
Paid work-tm.....	-.0927	.0560	.1220

* Statistically significant at between the .05 and .10 percent level in the model.

** Statistically significant at the 5 percent level in the model.

tendency to become reentitled. Vocational or job training was the only rehabilitation service to have an effect on the reentitlement tendency, and this effect was positive. The rehabili-

tation services of physical therapy, job counseling, general education, and assistance in job placement had no effect on the reentitlement tendency.

Chart 1.—Percent of persons still out of the DI program after given number of years, by age at time of recovery termination

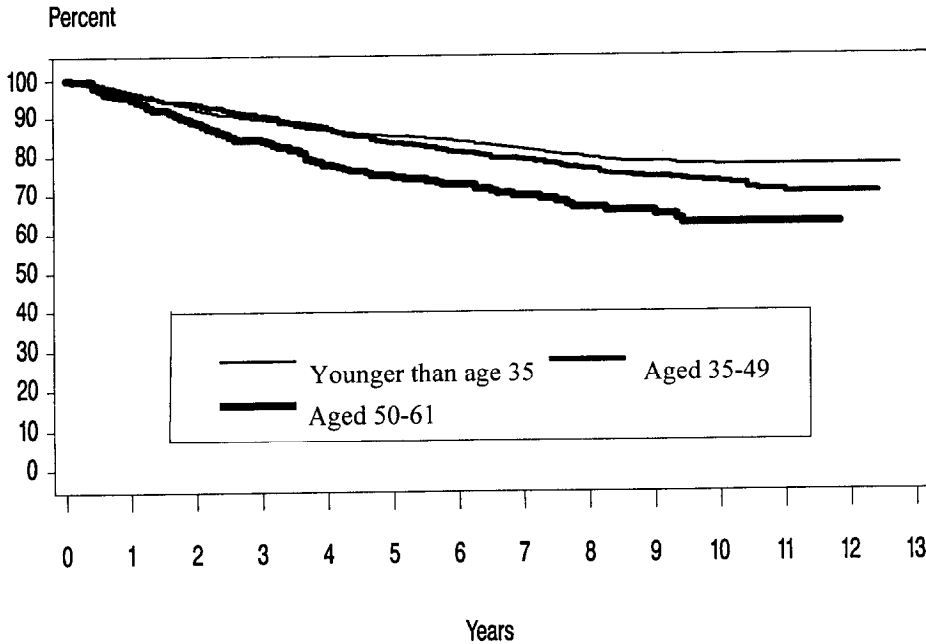
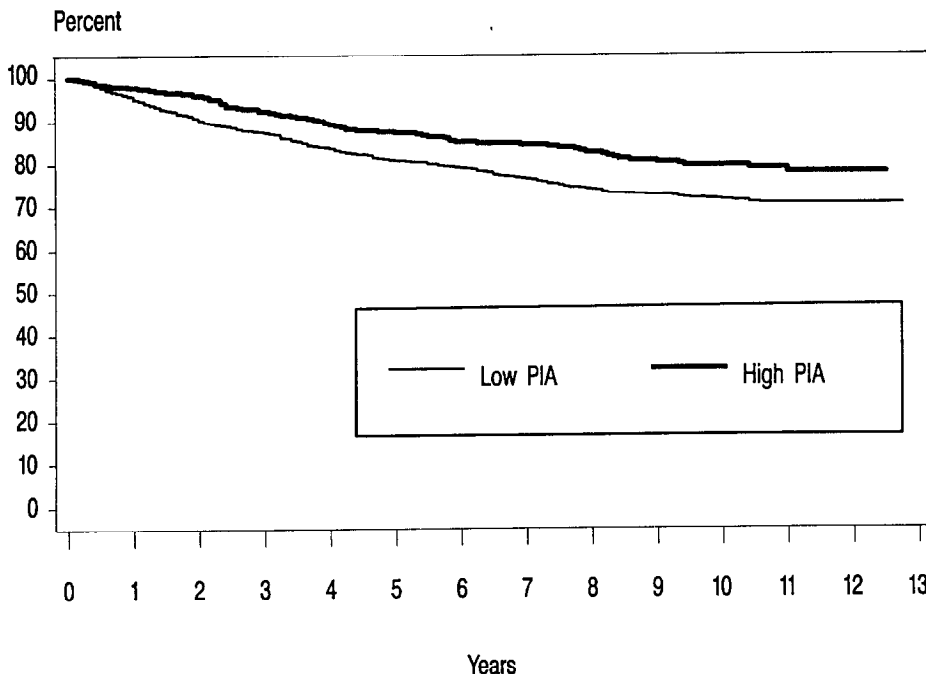


Chart 2.—Percent of persons still out of the DI program after given number of years, by PIA group



Work History

The coefficient for paid work between the time of recovery termination to the next event is negative and marginally significant. If a person indicated work for pay after the recovery termination, but prior to the year of the next event, the person may show a lesser reentitlement tendency.

Chart 4 illustrates the survival curves for this variable. The curve for those who reported paid work in the time after the recovery termination (the darker curve) does not drop as dramatically as the curve for those who did not report paid work.

Other Variables

Educational level and knowledge of work-incentive provisions had no effect on the reentitlement tendency. None of the rehabilitation services, other than vocational or job training, had an effect. Pension income, as measured by a simplified pension indicator, also had no effect.

Comparison

Results from this article are compared with a recent article on factors that affect sustained work activity (Hennessey 1997). Hennessey notes that older beneficiaries have a lower tendency to start work and a higher tendency to stop work. For those experiencing a recovery termination, we have found that older persons exhibit a stronger tendency to return to the DI program.

According to Hennessey, beneficiaries with a higher PIA have a lower tendency to start a job; PIA was not shown to have an effect on the tendency to stop a job. In this article, those with a higher PIA show a lesser tendency to return to the DI program.

Married individuals in the previous article showed a lower tendency to start a job, but marriage status had no

effect on the tendency to stop a job. Here, marriage status has no effect at the time of the recovery termination. There is some evidence that over time married individuals will have a greater tendency to return to the DI program.

Hennessey found that vocational or job training increased

the tendency to start a job and had no effect on the tendency to stop a job. Those who had vocational or job training showed a lesser tendency to come back to the DI program. Vocational/job training is the one rehabilitation service that was shown here to promote a sustained recovery termination. Physical therapy, job

counseling, assistance in job placement, and general education did not affect the reentitlement tendency.

Knowledge of work-incentive provisions had a mixed effect on the tendency to start and stop a job in the earlier article. For those persons in this article, that is, those who had a recovery termination, knowledge of the work-incentive provisions had no effect on the tendency to become reentitled.

Summary and Further Research

The purpose of this article was to determine the effect of certain covariates on the reentitlement tendency. Not surprisingly, older individuals show a greater tendency to return to the DI program. Those who are older may be less able to adjust to new work circumstances or might experience increased medical problems as they age. PIA has an effect on the reentitlement tendency, with those in the higher PIA group showing a greater tendency to remain out of the DI program.

The positive effects of vocational or job training and paid work in the post-recovery period are an indication that individuals can be helped to sustain a recovery termination. Work variables such as these are important in affecting the reentitlement tendency. However, without an indicator of health status for this post-recovery period, we cannot know whether persons having vocational/job training or paid work experience are healthier than those who do not have such training or experience.

Knowledge of program incentives had no effect on the reentitlement tendency. Not many persons were aware of these program incentives.

In this analysis, we have not distinguished between a medical recovery termination and a work recovery termination. Through an examination

Chart 3.—Percent of persons still out of the DI program after given number of years, by reason of job training

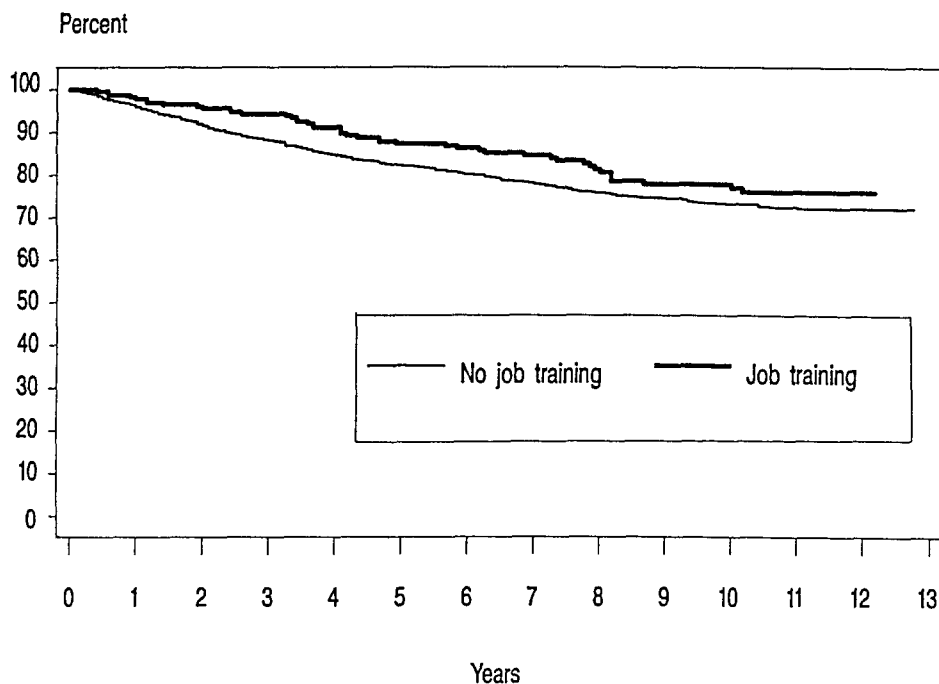
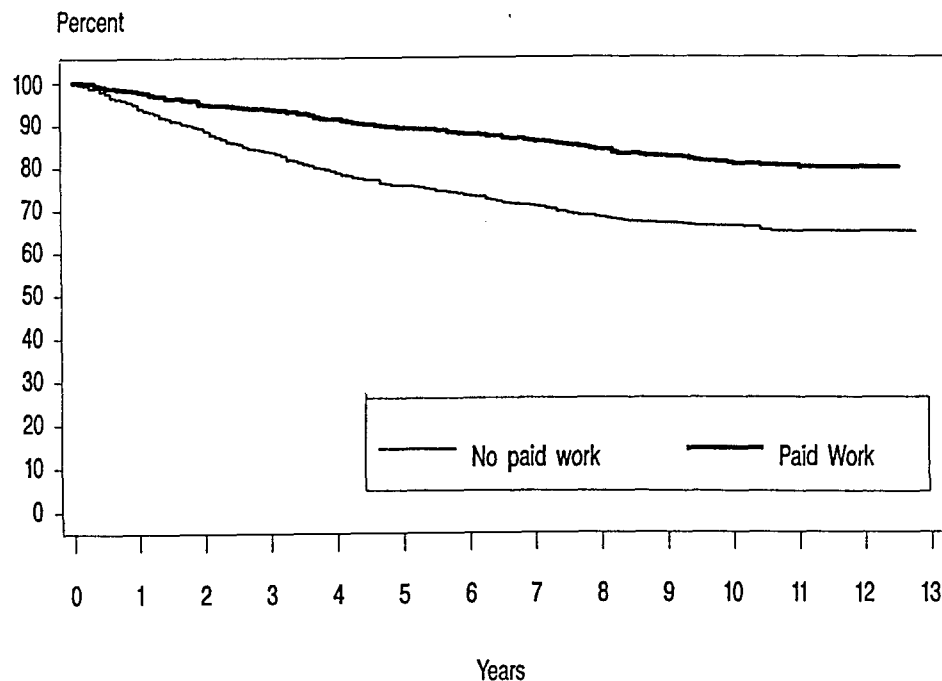


Chart 4.—Percent of persons still out of the DI program after given number of years, by reason of paid work



of data contained in beneficiary folders, we hope to be able to make this distinction in future articles and to reexamine the effect of these two types of recovery terminations on reentitlement.

Fiscal Year 1990." 1993. *Social Security Bulletin*, Vol. 56, No.3 (Fall), pp. 88-94.

U.S. Social Security Administration. 1997. *Annual Statistical Supplement to the Social Security Bulletin*. Washington, DC: U.S. Government Printing Office.

Notes

¹There were a few individuals who were initially reentitled under suspense status. The date of return to the DI program was defined as the date when these individuals began to receive benefits.

²In the period between ages 62 and 65, persons may file for early retirement benefits (early retirement at age 62) and/or disability benefits. Since retirement benefits can be awarded more quickly, a person may choose to receive a reduced retirement benefit pending a disability determination. Because we did not want to confuse disability beneficiary status with early retirement, retirement is defined as reaching age 62. Individuals who may return to the DI program between ages 62 and 65 are not of much interest here because of the short time they will be spending in the DI program; at age 65 they automatically convert to the retirement program.

References

- Allison, Paul D. 1995. *Survival Analysis Using the SAS System: A Practical Guide*. North Carolina: SAS Institute, Inc.
- Collett, D. 1994. *Modelling Survival Data in Medical Research*. London: Britain Chapman and Hall.
- Cox, D. R. 1972. "Regression Models and Life Tables." *Journal of the Royal Statistical Society*, Series B, 34, pp. 187-220.
- Dykacz, Janice M. and John C. Hennessey. 1989. "Postrecovery Experience of Disabled-Worker Beneficiaries." *Social Security Bulletin*, Vol. 52, No.9 (September), pp. 42-66.
- Hennessey, John C. 1997. "Factors Affecting the Work Efforts of Disabled-Worker Beneficiaries." *Social Security Bulletin*, Vol. 60, No.3, pp. 3-20.
- Hennessey, John C. and Janice M. Dykacz. 1989. "Projected Outcomes and Length of Time in the Disability Insurance Program." *Social Security Bulletin*, Vol. 52, No. 9 (September), pp. 2-41.
- Hennessey, John C. and L. Scott Muller. 1994. "Work Efforts of Disabled-Worker Beneficiaries: Preliminary Findings From the New Beneficiary Follow-up Survey." *Social Security Bulletin*, Vol. 57, No.3 (Fall), pp. 42-51.
- _____. 1995. "The Effect of Vocational Rehabilitation and Work Incentives on Helping the Disabled-Worker Beneficiary Back to Work." *Social Security Bulletin*, Vol. 58, No.1 (Spring), pp. 15-28.
- Kalbfleisch, J. D. and R. L. Prentice. 1980. *The Statistical Analysis of Failure Time Data*. New York: John Wiley & Sons.
- Muller, L. Scott. 1992. "Disability Beneficiaries Who Work and Their Experience Under Program Work Incentives." *Social Security Bulletin*, Vol. 55, No.2 (Summer), pp. 2-19.
- SAS/STAT User's Guide. 1990. Version 6, Fourth Edition, Vol. 2. North Carolina: SAS Institute, Inc.
- SAS Technical Report P-217. 1992. SAS/STAT Software: The PHREG Procedure. North Carolina: SAS Institute, Inc.
- "Statistical Notes From the New Beneficiary Data System Benefits and Beneficiaries Under Public Employee Retirement Systems,