

THE TIME BETWEEN DISABILITY ONSET AND APPLICATION FOR BENEFITS: HOW VARIATION AMONG DISABLED WORKERS MAY INFORM EARLY INTERVENTION POLICIES

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This study contributes to literature that examines how much time typically passes between disability onset and application for disability-program benefits. It addresses two questions: How long after onset do people wait to apply? How might variation in time between onset and application help to identify potential target groups for early intervention? Using Social Security administrative data from the Adult Disability Report, we find that the median period from onset to application is 7.6 months. Younger applicants tend to have waited longer, particularly those diagnosed with back impairments or arthritis. Among both younger and older applicants, individuals diagnosed with intellectual disability or other mental disorders are potential targets for early intervention programs because those groups wait the longest to apply and are the most likely to continue working in the interim.

Introduction

The Social Security Disability Insurance (DI) program provides benefits to individuals who have developed a medical condition that prevents substantial work activity. Applicants must have work histories of sufficient length and recentness to qualify for benefits. Once they enter the DI program, few beneficiaries find employment and exit the rolls (Liu and Stapleton 2010; Raut 2017; SSA 2017).¹ Policymakers and researchers have tested numerous interventions that aim to reduce dependence on DI benefits by helping disabled workers remain in the labor market—or return if they have left. Yet interventions targeted to disabled workers *before* they apply for DI benefits may achieve greater success. For instance, the Demonstration to Maintain Independence and Employment, which provided wrap-around services to disabled workers, significantly reduced federal disability-benefit awards among participants in some demonstration states (Whalen and others 2012).

Selecting a target population is an important first step in designing an intervention. Policymakers and

practitioners may use previous research and expertise to select target populations and to tailor interventions to those groups. For such interventions, administrative data from the Social Security Administration (SSA) provide useful information on potential target groups. For instance, Costa (2017) matches administrative records on earnings and disability claims from SSA's Disability Research File to show how long DI applicants experience an earnings decline before filing. Certain applicant subgroups tend to experience long periods of slow earnings decline, while decline is rapid for others. These contrasting experiences, according to

Selected Abbreviations

DI	Disability Insurance
EAO	early adult onset
EDCS	Electronic Disability Collect System
LAO	late adult onset
SSA	Social Security Administration
VR	vocational rehabilitation

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Costa, suggest that interventions may be designed to suit certain applicant types (for example, brief interventions for groups with rapid earnings decline).

This study uses another administrative data source: the Adult Disability Report. In that report, DI applicants identify the date that their disability began as well as the date that they stopped working. Because it also records the application filing date, this data source shows the amount of time that elapsed between disability onset and DI application, which we refer to as *filing time*.

Research suggests that early interventions have the greatest success when they are implemented shortly after disability onset (Christian, Wickizer, and Burton 2016; Shaw and others 2013; Wickizer and others 2011). Because the first days and weeks after onset represent a critical period for initiating an intervention, information on filing times may shed light on how long the window of opportunity for intervention lasts. Estimating this window may help policymakers target and tailor services. For example, if a certain group of applicants tends to delay filing, longer interventions may yet be able to serve them. Applicant groups with typically brief filing times, on the other hand, may pose challenging targets. If policymakers opted to target those groups, they would know to design brief, intensive interventions.

In addition to knowing filing times, policymakers may benefit from knowing whether applicants work between disability onset and filing—and if so, for how long. Groups of applicants that are more likely to work after onset represent attractive targets because they may have greater work capacity on average. Interventions targeting these groups could focus on maintaining employment. For applicant groups that are less likely to work after disability onset, interventions could focus on labor market reentry.

This study addresses two sets of questions:

- After disability onset, how long do eventual DI applicants wait to file? How do new findings on filing time, based on administrative data, compare with estimates from previous research based on survey data?
- Which applicant groups tend to delay filing after onset and which continue to work during the delay? How might these patterns of delay and continued employment inform early intervention efforts?

Answering the first set of questions contributes to an existing literature on the timing of disability onset and DI application. Answering the second set should

reveal variations in filing times that can inform early intervention policy. Past research on the timing of onset and DI application relies primarily on longitudinal survey data. Relative to the breadth of administrative data, the limited sample sizes of these surveys do not allow for comparisons based on applicant characteristics. This study uses administrative data to uncover policy implications based on comparisons by applicant age, impairment type, and educational attainment that were not available in past research.

We begin by reviewing literature on filing times. We compare various definitions of disability onset with the definition used in the Adult Disability Report, and consider how filing times recorded in administrative data may compare with those derived from survey-based definitions. We then measure filing times across applicant characteristics including age at onset, sex, education, and impairment type. Next, we examine the prevalence and duration of post-onset employment by the same characteristics. We specifically consider groups of applicants who both delay filing and continue to work after onset. Finally, we discuss the implications of these findings for early intervention policies.

Previous Research

Prior studies have used varying definitions of disability onset and have thus produced varying filing-time results (Table 1). From the date that a medical condition “first bothered” the eventual applicant, Burkhauser, Butler, and Weathers (2001/2002) found that 7 to 8 years passed, on average, before application. From the date that the condition “first prevented” work, Benítez-Silva and others (1999) and Maestas, Mullen, and Strand (2015) found considerably shorter typical filing times of about 8 or 9 months.²

Filing times also vary with business cycles. Maestas, Mullen, and Strand (2015) estimated that median filing times increase by half a month for each percentage-point increase in the unemployment rate. This is consistent with the hypothesis that some workers in the labor force would become applicants if they were to lose their jobs (Autor and Duggan 2003). To account for this circumstance, we hold the level of these “conditional applicants” constant in this study by analyzing applications in a short period with relatively stable economic conditions (2013–2014).

Our administrative data source measures filing time from the date on which the impairment first prevented work. Thus, our estimates correspond conceptually with the estimates of Benítez-Silva and others (1999) and Maestas, Mullen, and Strand (2015).

Table 1.
Prior studies examining time elapsed from disability onset to disability-benefit application

Study	Data source	Reference period	Median filing time	First-year application hazard rate
<i>Onset defined as when the medical condition "first bothered" the eventual applicant</i>				
Burkhauser, Butler, and Weathers (2001/2002)	Health and Retirement Study, wave 1	1974–1992	7 years (men), ^a 8 years (women)	0.16 (men), 0.13 (women)
<i>Onset defined as when the medical condition "first prevented work"</i>				
Benítez-Silva and others (1999)	Health and Retirement Study, waves 1–3	Onset prior to 1996	9 months	--
Maestas, Mullen, and Strand (2015)	Social Security administrative data	Application in 2007	8.2 months	--
Messel and Strand (2019)	Social Security administrative data	Application in 2013–2014	7.6 months	0.63 (men), 0.62 (women)

SOURCE: Authors' review.

NOTE: -- = not available.

a. Mean filing times.

Table 1 also shows the estimated hazard ratios of application within 1 year of onset. From the date the condition first bothered the applicant, the first-year hazard ratio is 0.13 for women and 0.16 for men (Burkhauser, Butler, and Weathers 2001/2002). For the year after the date the medical condition first prevented work, we estimate hazard ratios more than four times those of the 2001 study (0.62 for women and 0.63 for men). This contrast is compatible with the difference between filing times estimated using the “first bothered” and “first prevented” definitions.

Our estimates are to be viewed in the context of a literature that examines the return-to-work determinants of people with severe impairments, much of which has focused on DI beneficiaries. These studies find relative consensus that return to work is most often achieved by younger beneficiaries and by those with sensory impairments (Chan and others 2014; Mann, Mamun, and Hemmeter 2015; Government Accountability Office 2005; Stapleton and others 2008).

The low overall reemployment rate among DI beneficiaries, however, has pushed researchers to focus on the period when people with disabilities are not yet DI beneficiaries (McCrery and Pomeroy 2016; Burkhauser and Daly 2011). Once enrolled in DI, a beneficiary’s decision to return to work may risk the predictable income stream of DI benefits—an annuity that could have a high present value (Roberts 2012). Demonstration projects conducted by SSA have indicated only a small employment-rate response,

if any, to changing short-term financial incentives. For example, the Benefit Offset National Demonstration tested the employment-incentive effects of gradually phasing DI benefit amounts out as earnings rise above the substantial gainful activity level. Preliminary results indicate no statistically detectable effects on earnings—even though program costs increased because of the benefit offset (Hoffman and others 2017).

In contrast with those results, reemployment rates for clients who receive vocational rehabilitation (VR) services prior to receiving disability benefits are three times higher than those of DI beneficiaries overall (Mann and others 2017; Mann, Mamun, and Hemmeter 2015). The correlates of successful return to work are more difficult to characterize among this population, however. For instance, some studies find, consistent with Ticket-to-Work Program results, that VR service recipients with sensory impairments achieve relatively high postintervention employment (Chan and others 2014; Rosenthal and others 2006). Yet O’Neill and others (2017) find that many of these VR recipients work outside competitive employment in sheltered workshops. Viewed from another angle, Mann and others (2017) find that clients with intellectual disability have comparatively high long-term reemployment rates (1–6 years after VR case closure). With these findings in mind, we analyze sensory impairments and intellectual disability alongside the impairment groups that represent larger numbers of applicants, such as mental disorders and back (musculoskeletal) impairments.

The success of early interventions may also vary by applicant education and age. Individuals with higher levels of education generally achieve higher reemployment rates after VR services. For age, findings are mixed; some studies find a clear decline in reemployment levels with age, but the overall picture is unclear (Mann and others 2017; O'Neill and others 2017). Our primary interest in adding to existing findings on filing times by education and age is to identify logical targets for early intervention.

Methods

This study uses data from SSA Form 3368, the Adult Disability Report. The data are stored in SSA's Electronic Disability Collect System (EDCS). The Adult Disability Report is similar to surveys used in previous studies in that individuals provide retrospective reports of their disability and employment history. It includes the applicant's sex and educational attainment, the alleged date of onset, the date the applicant exited the labor market, whether and how the applicant modified work hours or responsibilities, and the date the initial-level claim was filed. In Appendix A, we define the study variables that underlie the population characteristics we report.

The study population consists of 2,155,658 individuals who applied for DI during 2013–2014. SSA field-office staff verified that the applicants were insured and state Disability Determination Services staff found them to have a severe impairment expected to last 12 months or longer. The population includes individuals who received either a medical allowance in the third step of SSA's five-step determination process, a denial based on the ability to engage in past work at step 4, or a decision based on the ability to engage in another type of work at step 5.³ We restrict the population to applicants who experienced disability onset at ages 25 to 66. The population excludes applicants reporting childhood onset because their filing times would be difficult to compare meaningfully with those of applicants with adult onset.⁴ We also exclude individuals who reapply citing the same impairment in both the initial and subsequent applications (these account for about 6.4 percent of all applications).

Table 2 shows the study population characteristics. The median onset age is 51.2, and the population is evenly divided by sex. Most applicants completed high school (81.3 percent), but very few completed four years or more of college (11.4 percent). Among the impairment types we highlight in the study, back

impairments are the most common, followed by arthritis, mental disorders, cardiovascular impairments, and neoplasms. Few applicants report metabolic/endocrine disorders, respiratory impairments, injuries, sensory impairments, or intellectual disability. Although the majority of applicants stop working at the time of onset, about one in five of them (20.3 percent) continue to work.

This article presents descriptive statistics.⁵ We report filing times by quantiles rather than as means because small numbers of very long filing times skew the means positively. Because we use population data rather than sample data, all cross-category variations in filing times are statistically significant.

Table 2.
Characteristics of 2013–2014 DI applicant study population

Characteristic	Number	Percent
Total	2,155,658	100.0
Sex		
Men	1,075,434	49.9
Women	1,080,224	50.1
Education ^a		
None	7,677	0.4
Less than high school	375,531	18.3
High school	976,405	47.6
Less than 4 years of college	457,630	22.3
At least 4 years of college	234,285	11.4
Age at onset		
25–47	836,240	38.8
48–66	1,319,418	61.2
Median age at onset	51.2	
Diagnosis		
Back impairments	468,791	21.7
Arthritis	312,103	14.5
Mental disorders	263,808	12.2
Cardiovascular impairments	223,755	10.4
Neoplasms	181,704	8.4
Metabolic or endocrine disorders	83,960	3.9
Respiratory impairments	80,992	3.8
Injuries	64,228	3.0
Sensory impairments	42,119	1.9
Intellectual disability	5,684	0.3
Other impairments	428,514	19.9
Employment		
Worked after onset	436,160	20.3
With modified hours or responsibilities	274,533	12.8
With no modifications	161,627	7.5

SOURCE: Authors' calculations using Adult Disability Report data.

a. Omits 104,130 applicants with missing/unknown data.

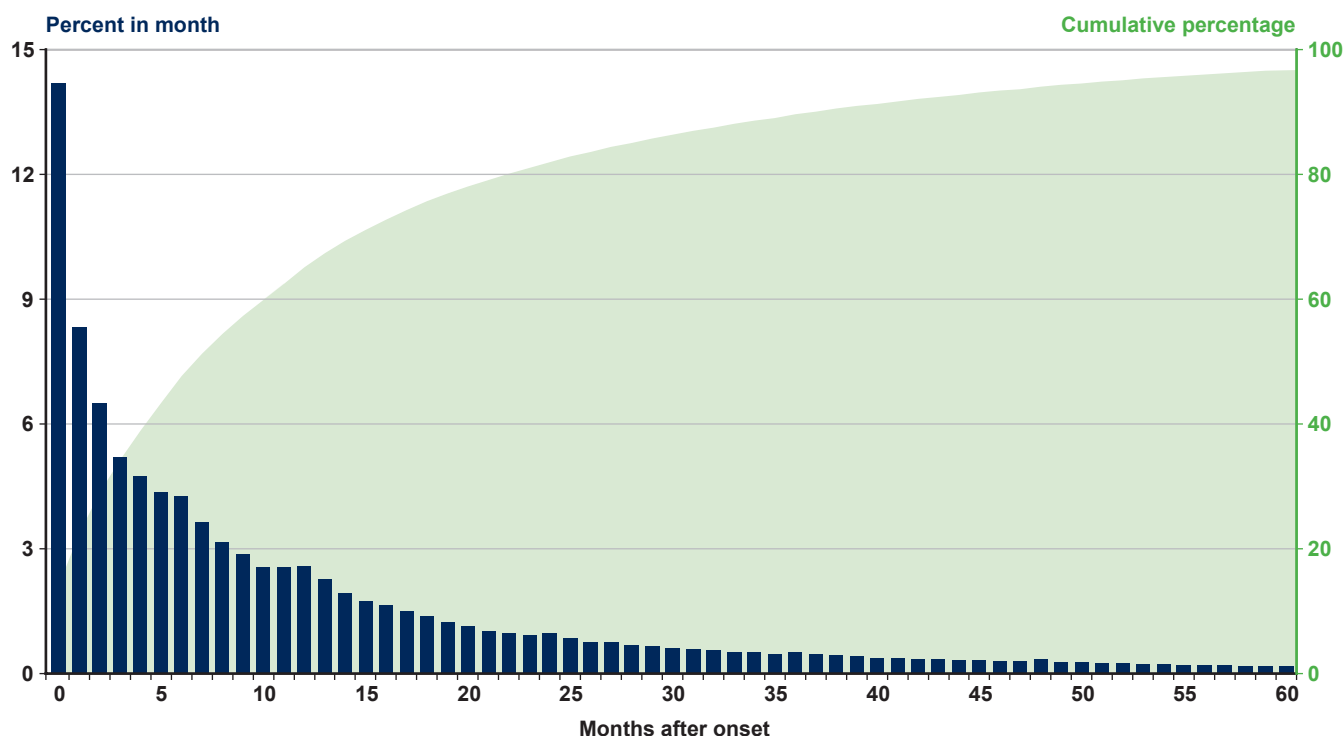
Results

How long do DI applicants wait to file? The median filing time for DI benefits is 7.6 months after onset. Chart 1 shows the percentage of eventual applicants that files in each successive month after onset, as well as the cumulative percentage of eventual applicants that has filed by the end of each successive month. Slightly more than 14 percent of applicants file within 1 month of onset. An additional 8.4 percent file in the second month and 6.5 percent file in the third. The share of applicants filing in each successive month drops steadily. Within 18 months of onset, three-quarters of eventual applicants have filed, and only about 10 percent wait longer than 36 months to file.

As noted earlier, filing times recorded in administrative data more closely reflect the results of surveys that define onset as when work was first prevented than of those that define onset as when the respondent was first bothered (Table 1). Because the Adult Disability Report instructs applicants to indicate when their condition kept them from working—synonymous with work *prevention*—the pattern revealed in Chart 1 aligns with expectations.

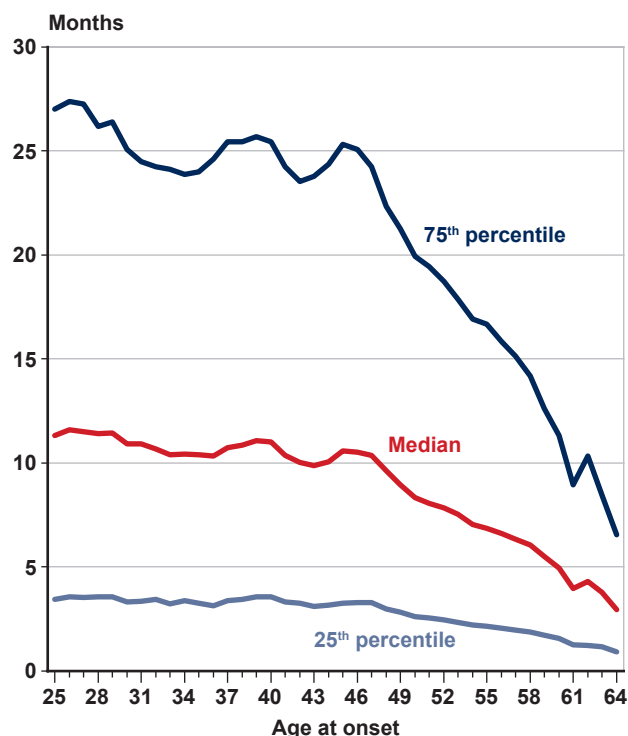
Which applicants tend to wait longer to file? The variable with the most striking differences in filing times is onset age. Chart 2 shows that the median filing time changes very little from onset ages 25 to 47, but drops steadily from onset ages 48 to 64. Through age 47, applicants wait 10–11 months after onset to file. At onset age 50, the median filing time is 8 months. For onset age 56, the median filing time is about 6.5 months and for onset age 61, it is 4 months. Chart 2 also shows the 25th- and 75th-percentile filing times at each onset age. At the 25th percentile, filing times remain relatively constant at about 3.5 months for onset ages 25 through 47 and decline to about 2 months for individuals with onset ages in the mid-50s or later (indicating that one-quarter of individuals with onset in their early 60s wait less than 2 months to file for benefits). The 75th percentile trend line varies more dramatically. Among those with onset ages of 25 to 47, roughly one-quarter of eventual applicants wait 2 years or longer to file for benefits. Among those with an onset age of 61, however, only one-quarter of applicants wait *1 year* or longer to file for benefits. Recall that approximately 1 year is the *median* filing time for eventual applicants with onset ages younger than about 40.

Chart 1.
2013–2014 DI applicants, by filing time (in percent)



SOURCE: Authors' calculations using Adult Disability Report data.

Chart 2.
Median, 25th-, and 75th-percentile filing times,
by age at onset: 2013–2014 DI applicants



SOURCE: Authors' calculations using Adult Disability Report data.

Because filing times vary so distinctly by onset age, the remainder of this article divides the population of eventual applicants into two groups: those with disability onset at ages 25 through 47 and those with onset at ages 48 through 66. We call these groups early adult onset (EAO) and late adult onset (LAO) applicants, respectively.

Dividing the population into onset age groups also removes the primary source of collinearity, such that the results of the bivariate analyses mirror those of multivariate analyses. For instance, Table 3 shows that the distribution of primary impairments varies by onset age. As a result, failing to consider onset age could bias the reported relationship between impairment type and filing time.

Applicant groups who typically wait longer to file may be logical targets for early interventions. Chart 3 shows the distributions of eventual applicants across four filing-time categories: less than 6 months, 6–11 months, 12–23 months, and 24 months or longer. Although nearly two-thirds of all EAO applicants waited 6 months or longer to file, barely more than

Table 3.
Percentage distribution of 2013–2014 DI
applicants, by diagnosis and age at onset

Diagnosis	EAO (ages 25–47)	LAO (ages 48–66)
Total	100.0	100.0
Intellectual disability	0.5	0.1
Mental disorders	20.6	6.9
Back impairments	21.9	21.7
Arthritis	10.5	17.0
Metabolic or endocrine disorders	2.3	4.9
Respiratory impairments	4.1	3.6
Injuries	3.4	2.7
Cardiovascular impairments	6.5	12.9
Neoplasms	4.6	10.9
Sensory impairments	2.0	2.0
Other impairments	23.7	17.4

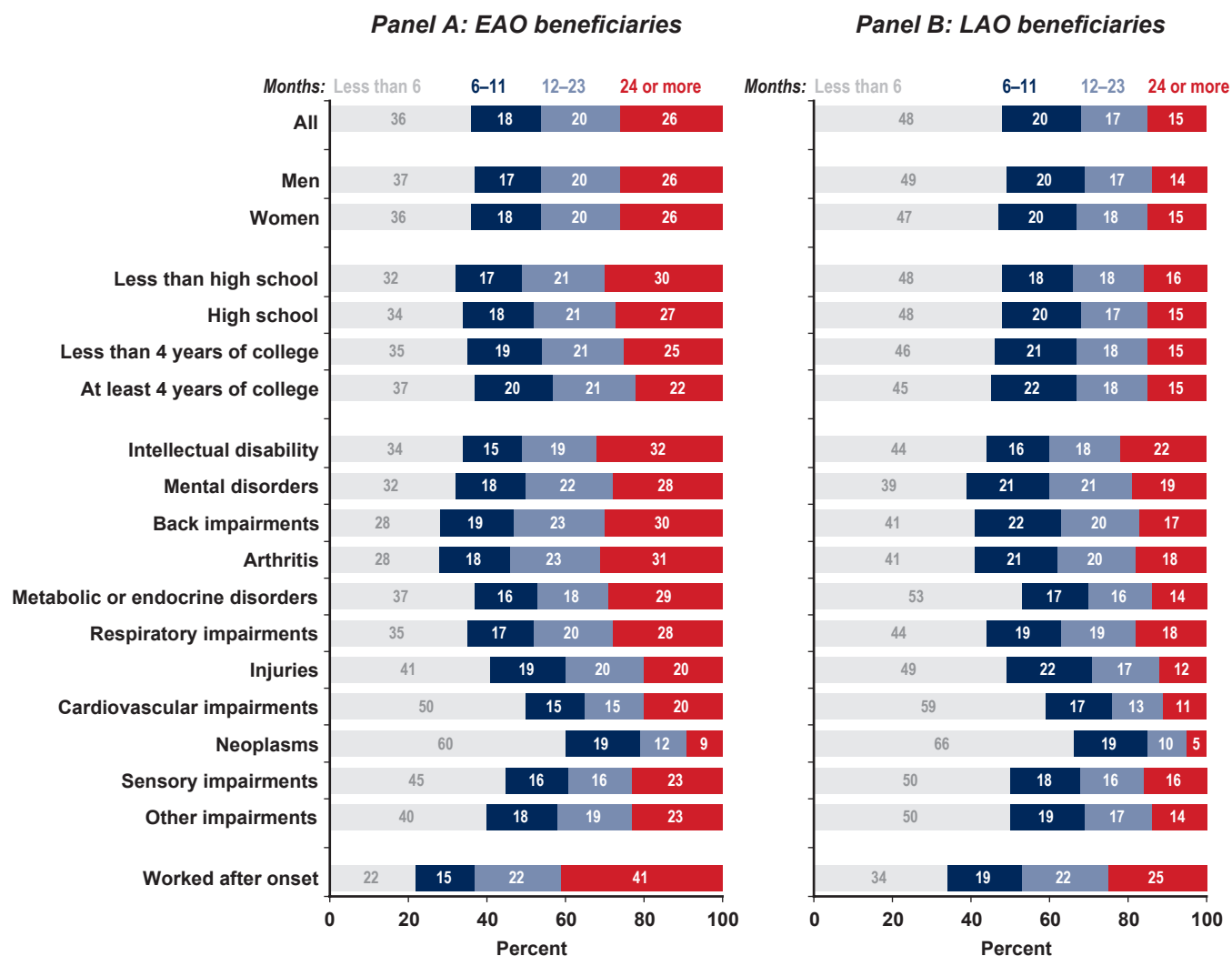
SOURCE: Authors' calculations using Adult Disability Report data.

NOTE: Rounded components of percentage distributions do not sum to 100.0.

one-half of all LAO applicants did. In particular, EAO applicants were much more likely to wait more than 2 years to file (26 percent did so, compared with 15 percent of LAO applicants). Along with the findings depicted in Chart 2, this suggests that EAO applicants may be better candidates for early intervention programs.

Among EAO applicants, filing times vary substantially across certain characteristics. Although filing times differ little by sex—women and men are equally likely to wait 6 months or longer—they vary by education. Applicants with lower levels of education wait longer to file. Although only 22 percent of applicants with at least 4 years of college wait 2 years or longer to file, 30 percent of those who did not complete high school do. Applicants with intellectual disability have longer filing times than do those with other impairment types. Those with back impairments and arthritis also tend to wait relatively long; nearly three-quarters wait 6 months or more to file, and 30 percent wait 2 years or more. Applicants with mental disorders also tend to wait longer to file (68 percent wait 6 months or longer). Although a sizable portion of applicants with metabolic/endocrine and respiratory impairments wait very long to file (almost 30 percent wait 2 years or more), these groups are also slightly more likely to wait less than 6 months. Applicants with sensory impairments, injuries, cardiovascular impairments, and neoplasms also tend to file more quickly. Most importantly, applicants who continue working

Chart 3.
Percentage distributions of EAO and LAO beneficiaries, by filing time and selected characteristics, 2013–2014



SOURCE: Authors' calculations using Adult Disability Report data.

beyond onset are much more likely to delay filing. Nearly four-fifths of these applicants wait 6 months or longer, and two-fifths wait 2 years or longer.

Filing-time patterns among LAO applicants are similar to those of EAO applicants for some characteristics, but not for others. LAO women are slightly more likely than men to wait at least 6 months to file (53 percent versus 51 percent). Contrary to EAO applicants, LAO applicants with at least some college education are more likely to delay filing 6 months or more than are those with no postsecondary education (although differences by level of attainment are less marked than are those of EAO applicants). Comparing by impairment type, applicants with mental disorders are the

most likely to wait at least 6 months to file (61 percent), followed by those with arthritis and back impairments (59 percent for both). As with EAO applicants, more than half of LAO applicants with respiratory impairments wait 6 months or longer to file, but more than half of applicants with metabolic/endocrine disorders do not. Likewise, almost half (or more) of applicants with injuries, cardiovascular impairments, neoplasms, and sensory impairments file in less than 6 months. Applicants who continue to work after onset are the LAO subgroup most likely to delay filing—two-thirds wait 6 months or longer, and one-quarter wait 2 years or longer—although they are less likely to delay filing than are EAO applicants who continue work.

The patterns in Chart 3 suggest potential candidates for early intervention. More than two-thirds of EAO applicants in the following groups delay filing by 6 months or longer: those who did not complete high school; those with intellectual disability, mental disorders, back impairments, or arthritis; and those who continue working after onset.

Chart 4 shows the percentages of EAO and LAO applicants who continue working—both with and without modifications of their work hours or responsibilities—after disability onset, as well as the average number of months that they work.

Nearly one-quarter of all EAO applicants work after onset. On average, they continue working for 11 months. Women continue work more often than men do, although they do not work as long. Working after onset does not vary distinctly by education level, although individuals with at least some college education are more likely to modify their hours or responsibilities. This may indicate that EAO applicants with more education have greater access to workplace accommodations (McDowell and Fossey 2015; Yelin, Sonneborn, and Trupin 2000; Zwerling and others 2002). Of all subgroups, applicants with intellectual disability are the most likely to work after onset (36 percent). They also have the longest average duration of work after onset (17.1 months). Applicants with mental disorders are the second most likely to work after onset (28 percent), and have the second longest average duration (12.0 months). Slightly lower proportions of applicants with arthritis and with back, metabolic/endocrine, and respiratory impairments work after onset, but they also tend to keep working for about a year. Proportionally, fewer applicants with injuries, cardiovascular impairments, and neoplasms work after onset.

Less than one-fifth of all LAO applicants (17 percent) work after onset. Moreover, they work for only about half as long as EAO applicants do (6.2 months on average). LAO women are more likely to continue working than men are—and with a slightly longer average duration. Applicants with any college education are more likely to work with modifications than applicants with less education do, but they are not substantially more likely to continue work overall or to work longer. Work continuation rates do not vary widely by impairment type for LAO applicants. With the notable exception of intellectual disability, no impairment group exceeds 20 percent.

Together, Charts 3 and 4 show some overlap in the applicant groups that tend to delay filing and to continue working after onset. Among EAO applicants with intellectual disability, mental disorders, back impairments, and arthritis, two-thirds delay filing by 6 months or longer and at least one-quarter continue working after onset (and work for about a year or longer on average). On the other hand, some groups of applicants are more likely than others to delay filing, but not necessarily to work after onset. For instance, EAO applicants who did not complete high school often delay filing, but are not especially likely to work after onset. Similarly, EAO applicants with back impairments and arthritis wait longer to file than do applicants with other impairments. Yet, applicants with mental disorders—who also tend to delay filing—are more likely to work after onset.

Discussion

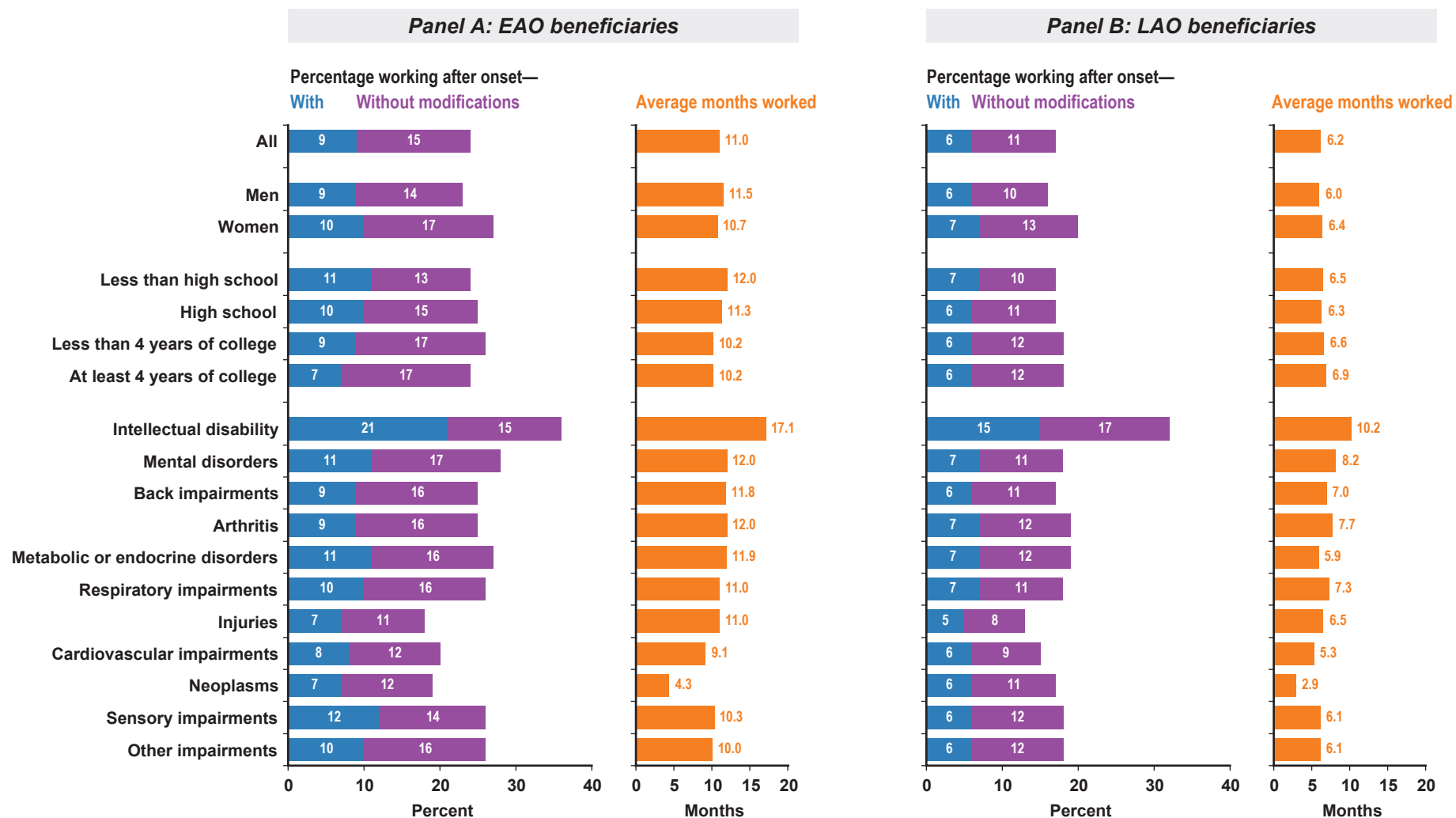
Some of the patterns have implications for early interventions. First, interventions targeted to applicants who experienced onset prior to age 48 (EAO applicants) may have more time to take effect.⁶ As Chart 2 showed, the median time from disability onset to DI application does not vary widely from ages 25 to 47, remaining consistent at approximately 11 months. Among EAO applicants who tend to delay filing, five particular subgroups deserve further attention (Chart 5).

The two subgroups that are most likely to delay claiming and to continue working are those with intellectual disability and those with mental disorders. Applicants with intellectual disability wait substantially longer to file and continue working after onset more than any other group. Early interventions have achieved well-documented success in promoting employment among workers with intellectual disability (for example, Mann and others 2017; Wehman and others 2014). Although our findings suggest that EAO applicants with intellectual disability could be a fruitful target for interventions focused on maintaining work, they represent a small fraction of all applicants (less than 1 percent in 2013–2014).

EAO applicants with mental disorders are a much larger group (about 172,000), but they do not delay as long or work as often as do applicants with intellectual disability. Interventions that target them would thus have less time to take effect and might benefit from focusing on both work maintenance and labor market reentry. Among mental disorders, depression

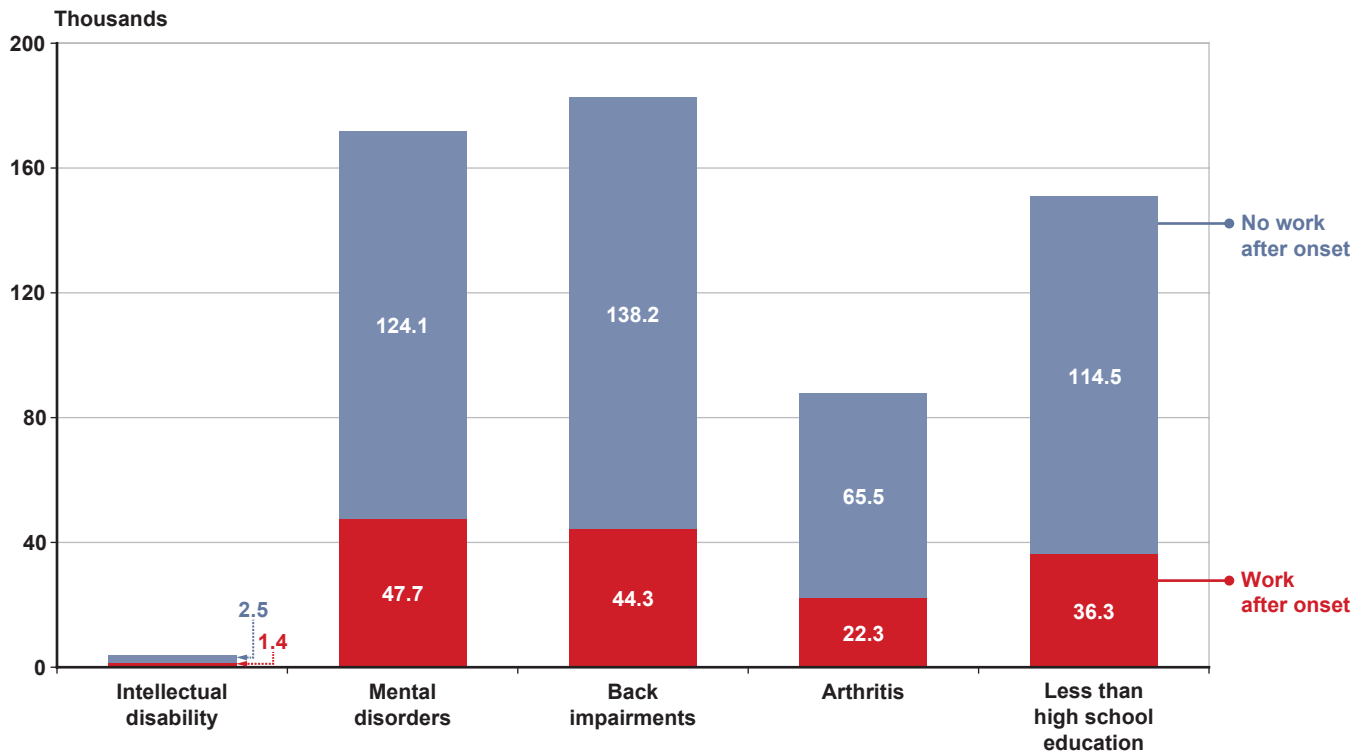
Chart 4.

Work after disability onset: Percentage of EAO and LAO applicants who work with or without modifications to work hours or responsibilities, and average duration among those who work, by selected characteristics



SOURCE: Authors' calculations using Adult Disability Report data.

Chart 5.
Numbers of EAO applicants who worked and did not work after disability onset: Five key subgroups, 2013–2014



SOURCE: Authors' calculations using Adult Disability Report data.

alone costs the United States more than \$51 billion in lost productive time annually (Greenberg and others 2015) and is a major source of growth in DI enrollment (Autor and Duggan 2003). If effectively targeted, early interventions could reduce the number of DI applications. Future research should identify workers with mental disorders who are most likely to apply for DI to target interventions more precisely. In 2016, SSA funded the Supported Employment Demonstration (SED), a 6-year study of how interventions providing employment supports in combination with integrated behavioral health and social services can help workers with mental disorders to reenter or stay in the labor force.⁷ That demonstration targets applicants who have been denied benefits, as opposed to the beneficiary population targeted by programs such as the Ticket to Work.

Three other EAO applicant subgroups also delay filing, but are slightly less likely to work after onset. EAO applicants with back disorders are roughly similar in number (about 182,000) to those with mental disorders. They continue working less often,

and thus targeted interventions for them might focus more on labor market reentry. Future research might identify industries of employment, occupations, and physical work requirements that are common among applicants with back impairments to target those workers more effectively. EAO applicants with arthritis are fewer in number (about 88,000) and less likely than are those with mental disorders to work after onset. Future research might focus on the specific employment challenges of workers who drop out of the labor market because of the onset of arthritis in early to mid-adulthood.

Finally, applicants who did not complete high school are nearly as numerous (about 151,000) as applicants with mental disorders and back impairments. They wait longer to file than applicants with at least a high school diploma but they are not more likely to continue working. Future research might explore why filing times vary by education level. Young applicants who did not complete high school may face barriers to applying, such as a lack of information, which could result in delayed filing. On

the other hand, individuals with more education may apply only if they have relatively more severe impairments, and thus tend to file quickly. Because their jobs often have fewer physical requirements and offer more workplace accommodations (McDowell and Fossey 2015; Sevak and others 2015), highly educated individuals with less severe impairments may choose not to apply for DI. If so, exploring how post-onset work experiences differ by education level may inform early intervention strategies. For instance, what supports help disabled workers with a college education remain in the labor force? If provided access to similar supports, would workers with less education continue to work and forgo DI application?

Interestingly, this study shows that individuals with sensory impairments tend to file more quickly than other groups but are no more or less likely to work after onset than applicants with other impairments. Although postapplication interventions have promoted employment in this group, targeted interventions in the period after the disability prevents work and before DI application may not have as much time to take effect.

In terms of implementing interventions, target groups identified in this study present some challenges. First, certain groups may be difficult to reach. For instance, because eventual applicants with intellectual disability represent a small subpopulation with a wide geographic distribution, a direct intervention with a fixed-location service center may prove untenable on a national scale.⁸ Claimants with mental disorders and musculoskeletal impairments constitute larger subpopulations, but no centralized data system exists from which the agency could identify potential candidates for intervention. The Demonstration to Maintain Independence and Employment (DMIE) exemplified the challenge of targeting workers with specific impairments—even when the populations of such workers are large—without such a data system. For instance, the Hawaii DMIE site targeted individuals with diabetes and used an employer-based voluntary outreach strategy—and, eventually, an open-enrollment outreach through media, health fairs, and service-care providers—rather than existing program data. Recruitment fell far short of the goal. Conversely, the Kansas DMIE site targeted individuals with a range of impairments using data from an existing program (the state’s high-risk insurance pool) and met recruitment goals (Gimm and others 2009).

Justifying interventions for applicant groups that have relatively low initial allowance rates may also pose a challenge. For example, in this study, applicants with mental disorders had initial-level allowance rates of 26 percent (not shown). An intervention targeting potential applicants with arthritis may be easier to justify, given their 44 percent initial allowance rate.

In terms of study methodology, the availability of data on more types of variables would remove a key limitation on further research. Many applicant groups may tend to delay filing or work after onset, including those in certain industries or occupations or with various levels of functional capacity. These groups and others are not represented in this study because those variables cannot be examined using EDCS data. Furthermore, this study lacks variables that might explain why certain groups of applicants delay filing. For instance, it would be helpful to know which resources and supports DI applicants may have used before filing. Future research may augment SSA-3368 data by merging them with data from external sources. These could include longitudinal survey data (such as the Health and Retirement Study and the Survey of Income and Program Participation) or contextual data such as area unemployment rates, as Burkhauser, Butler, and Gumus (2004) used. Future research might also build on this study by documenting the post-onset experiences of specific applicant groups.

Conclusions

This study adds to an emerging literature on filing time—the time that DI applicants wait to file after disability onset. It uses the Adult Disability Report (SSA-3368) to capture self-reported onset dates. We find that administrative records on filing times align closely with findings of previous survey-based studies that defined onset in terms of when an impairment first prevented work. Nearly two-thirds of eventual DI applicants file within a year of onset. The median filing time remains constant at approximately 11 months for eventual applicants with onset occurring at any age from 25 to 47, but drops steadily as onset age increases thereafter. This study uses the variation in filing times by onset age—as well as other differences in filing times and post-onset work by other applicant characteristics—to identify potential targets for early interventions. Key target groups include EAO individuals with mental disorders, back impairments, and arthritis, and those who did not complete high school.

Appendix A: Study Variables

Onset date. To measure the time that individuals wait to file for DI benefits after they perceive their disability to begin, this study uses the applicant's alleged onset date. In most cases (62.3 percent), individuals alleged an onset date that aligned with the day they stopped working.⁹ Although using the EDCS data from the Adult Disability Report allows more precise measurement of disability onset than survey data—because it records the day of onset, rather than only the month or year—it also contains some reporting bias. Applicants report disability onset dates as the beginning of calendar years and calendar months more often than other dates,¹⁰ and may also “round” to the nearest 6 months.

Filing date. This study uses the date on which the claim is filed at the SSA field office, known as the *claim effective filing date*. The study included applicants who filed during the period January 1, 2013 to December 31, 2014.

Educational attainment. We convert the educational information available in the EDCS (number of school years completed) into five categories: no school (0 years), less than high school (1 to 11 years), high school (12 years), less than 4 years of college (13 to 15 years), and at least 4 years of college (16 or more years).¹¹ In this classification, 47.6 percent achieved a high school level of education, 22.3 percent had less than 4 years of college, and 11.4 percent had completed 4 years or more of college.

Impairment categories. This study uses SSA primary diagnosis codes to classify impairment categories, focusing on the eight most common types: mental disorders (specifically, affective and anxiety disorders),

back impairments, arthritis, cardiovascular impairments, neoplasms, metabolic/endocrine disorders, respiratory impairments, and injuries. It also presents results for intellectual disability and sensory (visual, hearing, and/or speech) impairments, because previous research has shown relatively high levels of employment among these populations (for example, Mann, Mamun, and Hemmeter 2015). All remaining impairments are included in the “other” category.

Working after onset. This article categorizes applicants by whether or not they continue working beyond onset. The study assigns applicants to these categories based on the self-reported date on which they stopped working.¹² Modified work hours or responsibilities for those who continued working were indicated in the EDCS.

Notes

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¹ Additionally, Autor and others (2015) find that applying for DI benefits significantly reduces subsequent employment.

² Similarly, Singleton (2014) found that respondents are more likely to file a claim within a year when a disabling condition prevents work as opposed to limiting it; however, Singleton did not present specific figures for either concept.

³ The study population excludes individuals who received a technical (nonmedical) denial at step 1 and those found not to have a serious impairment or one that will last longer than 12 months at step 2. As Appendix Table A-1 shows, these groups typically have much longer filing times. We also exclude those who provided incomplete

Table A-1.
Disability-benefit filing times by step of the determination process at which award/denial was decided and age at disability onset: 2013–2014 DI applicants (in months)

Step	EAO (ages 25–47)		LAO (ages 48–66)	
	Median	Mean	Median	Mean
1 (technical [nonmedical] denial)	24.6	49.3	10.9	22.6
2	34.0	54.0	14.0	29.6
3	5.4	13.3	3.7	8.0
4	11.6	20.9	8.4	14.5
5				
Allowance	11.8	19.7	7.8	13.0
Denial	12.0	24.2	6.5	11.9
Other denials	11.7	24.0	8.5	16.2

SOURCE: Authors' calculations using Adult Disability Report data.

information, failed to participate in requests for consultative examinations, or reported no work history; and cases of *res judicata* and collateral estoppel (in broad terms, these are denials and allowances, respectively, based on prior determinations).

⁴ Restricting the population to adult-onset applicants also ensures that most of the population will have completed their lifetime educational attainment, which is important for analyzing variation in filing times by that metric.

⁵ Because some characteristics in this study (such as age and impairment type) are highly correlated, bivariate analyses could generate potentially misleading results. We conducted a multinomial logistic regression analysis, which modeled the likelihood that an applicant would wait certain periods (3–5 months, 6–11 months, 12–23 months, and 24 months or longer) after onset to apply for benefits. Our models included the variables shown in Table 2. Because the results of the multivariate analysis did not differ substantively from those of the descriptive analyses, we omitted them from the article. We will provide those results on request (Matt.Messel@ssa.gov).

⁶ They may also be the most potentially cost-effective group to target, given the literature showing that receipt of DI benefits reduces labor force participation for younger individuals more than for older ones (for example, French and Song 2014; Maestas, Mullen, and Strand 2013).

⁷ More information is available at https://www.ssa.gov/disabilityresearch/supported_employment.html.

⁸ However, some local-scale SSA demonstrations targeted to individuals with intellectual disability have produced some positive employment outcomes (Decker and Thornton 1995; Kerachsky and Thornton 1987).

⁹ Because SSA policy defines disability as the inability to engage in substantial gainful activity, it makes intuitive sense that applicants would associate disability onset with their exit from employment. These dates align more often for individuals who stopped working because of their impairment (73.0 percent) than for individuals who stopped working for other reasons (57.2 percent).

¹⁰ For instance, assuming individuals face an equal risk of disability onset every day of the year, one would expect less than 0.3 percent of individuals to report onset on January 1. Instead, roughly 4 percent report a January 1 onset (ranging from 2 percent of those who filed within a year of alleged onset to 12 percent of those who filed 5 years after onset). Likewise, for onset within a given month, one would expect about 3.3 percent would occur on the first day of that month. Instead, the first day is reported by 18 percent of those reporting onset in that month (ranging from 8 percent of those who filed within a month of onset to 33 percent who filed 24 months after onset). The latter phenomenon might also be partly due to individuals deciding to wait to quit working until the end of a month.

¹¹ EDCS data do not record whether an individual actually obtained a high school diploma or college degree.

¹² We also used these self-reported dates to measure how long applicants continued to work after onset.

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