



HOW DOES CONTINGENT WORK AFFECT SSDI BENEFITS?

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Abstract

Some studies have found that contingent workers – including independent contractors, consultants, and those in temporary, on-call, and “gig economy” jobs – make up an increasing share of the labor force. How does this group of workers interact with Social Security Disability Insurance (SSDI)? This project uses the *Health and Retirement Study* linked to administrative data on SSDI applications and earnings to answer this question. Specifically, the paper examines how SSDI application, receipt, potential benefits, and insurance status differ for workers who hold contingent arrangements in their 50s and early 60s, compared to those who work in more traditional jobs at those ages. This study is among the first to examine how contingent work is likely to affect participation in a public program, specifically disability benefits.

The study finds that SSDI application rates are about one-quarter smaller for older eligible contingent workers than for traditional workers of the same ages. Contingent workers are also about one-third less likely to be awarded disability benefits. The lower application and award rates are likely due in part to contingent workers’ lower eligibility rates and lower potential benefits. The application and award rates are also lower for contingent workers who have a chronic condition, work limitation, or limitation in their Activities of Daily Living. These results suggest that contingent workers would benefit from a greater availability of information and assistance in navigating the SSDI application process.

Introduction

Concern about contingent workers – often defined as workers in temporary and on-call jobs as well as independent contractors, consultants, and those in the online “gig economy” – has increased recently. Perhaps no study was more influential in raising this issue than the Katz and Krueger (2016) finding that employment in these arrangements rose from 10 percent in 2005 to 16 percent in 2015, and accounted for essentially all of the employment growth over that period. Evidence from tax data and bank records find similar increases (Jackson, Looney, and Ramnath 2017; Farrell and Greig 2017). And while very recent data from the U.S. Bureau of Labor Statistics indicates that the share of workers whose primary job is contingent may have actually fallen slightly over the past decade, concerns about the spread of contingent work still loom large as the advances in technology may make these jobs more and more common in the future. Although these jobs may provide opportunities to people who would otherwise be unemployed or retire early, policymakers have expressed reservations that these jobs are not as stable and do not provide the same benefits as traditional employment.

Up until 2010, Social Security Disability Insurance (SSDI) applications were on a long upward trend, while receipt rates trended upwards until 2014. An aging population and women’s increasing work experience (and thus their increasing eligibility to apply to SSDI) partly explains the increase in disability receipt between 1985 and 2012, but about half of the increase is due simply to an overall increase in applications (Liebman 2015). Prior work suggests that stagnant earnings prospects have led to an increase in SSDI application rates (Autor and Duggan 2006). Do weaker job prospects – as contingent work replaces traditional employment arrangements – encourage workers to drop out of the labor force and move to the disability rolls? Or do the lower eligibility rates and lower potential benefits among contingent workers make them less likely to apply for disability benefits?

This project compares SSDI activity for workers who engage in contingent arrangements in their 50s and early 60s to those who work only in traditional jobs at these ages. Three types of activity are analyzed: 1) eligibility (i.e., insurance status); 2) application and receipt rates; and 3) benefit levels. The analysis uses the *Health and Retirement Study* (HRS) linked to administrative SSDI application and earnings records to provide more accurate accounting of their SSDI activity than from self-reported information alone.

The results indicate that, among those eligible to apply for SSDI, older contingent workers are less likely than traditional workers to apply for, and be awarded, SSDI benefits. Contingent workers tend to have less job security and more unstable earnings, and often those earnings are unreported or underreported; as a result, they often do not accumulate enough covered work history to be eligible for benefits. Workers who are consistently in contingent arrangements also have lower earnings and therefore lower SSDI benefits than similar individuals in traditional employment; the lower benefits may further discourage application. Furthermore, contingent arrangements may also allow individuals with episodic disabilities to work when they are able, thereby choosing to forego SSDI application. These factors appear to outweigh the factors that could lead to higher application rates, such as contingent arrangements' inherent insecurity and instability, a higher likelihood of workplace injuries (Benavides et al. 2006; Smith et al. 2010), lower employment rates after workplace injuries (Brotten et al. 2018), and the lower opportunity cost of leaving a job that lacks employer benefits. The results suggest that even the contingent workers who need SSDI the most – those with chronic conditions and work limitations – are less likely to apply for and be awarded benefits.

This study provides one of the first examinations of the broader consequences of contingent work. Most previous studies have focused on classifying contingent arrangements and counting the share of the workforce engaged in these jobs.¹ Relatively few, so far, have looked at how contingent workers fare with regard to household finances or government programs.² To our knowledge, no recent study has compared participation of contingent vs. traditional workers in a federal public program.³ The current study, therefore, sheds light on

¹ The methods used to measure the contingent share of the workforce vary greatly, but most studies find an increase over the past decade. GAO (2015) examines household survey data from the *Current Population Survey* and *General Social Survey*. Katz and Krueger (2016) compare results of the CPS to a module of the *American Life Panel* that they fielded. Bracha, Burke, and Khachiyan (2015) and Robles and McGee (2016) field surveys asking workers about whether their jobs fit the characteristics of contingent work and why they engage in these jobs. Abraham et al. (2015) and Jackson, Looney, and Ramnath (2017) use tax data to identify workers with self-employment income and small levels of business expenses. Farrell and Greig (2016) examine checking account for Chase policyholders to look for deposits from gig economy payers. See Abraham, Haltiwanger, Sandusky, and Spletzer (2018) for a review of approaches to measuring contingent work.

² Jackson, Looney, and Ramnath (2017) find that workers in alternative arrangements are less likely to be insured and less likely to contribute to retirement accounts, but their results focus on outcomes at one point in time, rather than the cumulative effect of uninsured status and low retirement saving. GAO (2015) finds similar results on health and retirement benefits. Gale, Holmes, and John (2016) point out that contingent workers lack employer benefits and tend to be from lower socioeconomic groups, and both factors indicate they will be worse off in the long run, but their discussion is speculative.

³ Older studies, such as Lane et al. (2001), find that workers in non-standard arrangements are more likely to receive welfare benefits, but these studies predate the rise of contingent workers in the 2010s. Other studies have examined

how SSDI activity and program expenditures are likely to change should contingent work increase in the future, and whether the program is able to help those who need it the most.

The remainder of the paper is arranged as follows. The second section provides background on SSDI and how contingent work could influence each aspect of the program. The third section describes the data and methodology used to categorize workers as contingent, and outlines the empirical strategy for examining the relationship between contingent work and SSDI activity. The fourth section presents the results. The fifth section concludes that contingent workers – even those with health limitations – are less likely to apply for and receive SSDI. This result suggests that contingent workers may benefit from greater availability of information and assistance in navigating the application process.

Institutional Background on SSDI and Contingent Workers

Structure of SSDI

This section describes the structure of SSDI, and explains how contingent work may affect each of its aspects: eligibility, potential benefit levels, and disability evaluation. It then discusses how these factors may lead to differences in the application decision between contingent and traditional workers.

Eligibility. SSDI is designed to provide benefits to people who paid into the Social Security system but can no longer work due to a health limitation. To be eligible to apply for SSDI benefits (i.e., to be “covered” or “insured” by SSDI), a worker must have accumulated a sufficient number of quarters of coverage, both over his career and in the last 10 years. Workers can earn up to four quarters of coverage in a single calendar year, for each multiple of \$1,320 (in 2018 dollars) earned in covered employment (that is, in a job where earnings are subject to Social Security payroll taxes). Individuals need to earn one quarter of coverage for each year since the year they turned 21, and 20 of those quarters (for those age 31 and older) must be from the 10 years before becoming disabled.

workers compensation programs at the state level (Smith et al. 2010; Broten, Dworsky, and Powell 2018) but lack data on whether workers compensation beneficiaries later enter SSDI.

Because contingent workers are employed – and in most cases, by private-sector employers subject to Social Security taxes – they could, conceivably, accrue quarters of coverage at the same rate as workers in traditional jobs. But they are less likely to be fully insured than traditional workers for at least two reasons. First, workers observed in contingent arrangements may be employed only spottily, in which case they may fall short of the required quarters of coverage. Second, even if they are working consistently, some earnings may be off the books; while workers benefit from being paid under-the-table in the short term by not paying payroll taxes, they are not fully credited for their earnings in this period, which may leave them short of the work experience required to be eligible to apply for SSDI benefits. Bruckner (2016) finds that more than 60 percent of online platform users did not receive a 1099 form from the platform; as a result, some workers may not include this income on their taxes, and therefore not receive credit on their Social Security records.⁴

Benefits. SSDI benefits are calculated using a procedure that is similar to Social Security retirement benefits. While the retirement benefit calculation is the average over beneficiaries' top 35 years of earnings (adjusted for wage growth), SSDI benefits are based on awardees' average earnings over fewer years, to ensure that disability beneficiaries do not see their benefits reduced for having shortened careers.⁵ Their average earnings are then entered into the same progressive benefit formula as retirement benefits to determine their primary insurance amount (PIA). Unlike retirement benefits, disability benefits are not reduced for early claiming; the benefit equals the full benefit.

The circumstances around contingent work suggest that workers engaged in it likely would have lower potential SSDI benefits. First, they are paid less; Katz and Krueger (2016) find that their weekly wages are 20-50 percent lower relative to traditional workers, controlling for differences in demographics and education. Contingent workers also likely experience more

⁴ Workers often do not receive 1099s if their income does not exceed a particular threshold. Bruckner (2016) finds that online labor and capital platforms such as Uber and Etsy stick to a relatively high threshold for filing 1099s: its users receive these tax forms only if they exceed 200 transactions and \$20,000 in payments in a tax year. Work in progress by Bruckner documents the degree to which contingent workers' earnings go untaxed and undercounted in Social Security earnings records.

⁵ To calculate career average earnings, SSDI uses the number of years that have elapsed since the beneficiary was age 21, and allows one out of every five years to be excluded. For example, an individual who is entitled to SSDI benefits at age 41 will have 20 elapsed years since age 21. The number of countable years used in the average equals 4/5ths of 20 years, or 16 years; therefore, SSDI benefits are based on his highest 16 years of earnings.

time out of work entirely, which also brings down average earnings. Additionally, older individuals who are actually considering SSDI application may have left, or be on the cusp of leaving, the workforce with health issues; temporary or on-call jobs or contracting may simply represent the most they were able to work given their health limitations. In sum, the lower earnings or the slow decline in earnings that predate disability would also reduce their potential SSDI benefit (Charles 2003; Meyer and Mok 2013).

Evaluation. After applying for SSDI benefits, the Social Security Administration employs examiners who evaluate whether the applicant's disability will: a) last at least one year or result in death; and b) prevent them from substantial gainful activity (SGA) during that time. A worker is considered to be capable of SGA if their earnings could exceed \$1,180 per month (in 2018 dollars) in either their past job or any job appropriate for their age, education, and experience. Alternatively, applicants may be awarded benefits if they can confirm that they have one of a select number of medical conditions; applicants with these conditions do not have to show that they are unable to earn the SGA level. If the application is denied, the applicant can appeal – first to a different examiner from the same SSA field office, and later to an administrative law judge (ALJ).

It is unclear how contingent workers may be evaluated relative to traditional workers with similar health conditions. On the one hand, workers who forge contingent arrangements have shown some independence and adjustability, which may mean that evaluators could judge them capable of performing a wider variety of jobs, including some that accommodate their health limitations; in this case, contingent workers would be more likely to be denied than similar traditional workers. On the other hand, contingent work may be seen as something done primarily by those who cannot hold on to a more formal, permanent job, in which case contingent workers may have a higher chance of being awarded benefits than similar traditional workers.

The Potential Associations between SSDI Activity and Contingent Work

Factors contributing to lower application rates. The preceding discussion suggests that contingent work would likely discourage contingent workers from applying for disability benefits. First, they are less likely to have the option to apply than traditional workers, as they

are more likely to fall short of the quarters of coverage required to be eligible to apply. Second, because their potential benefits are probably lower, contingent workers may be less likely to apply; the benefit may not be enough to justify the effort and psychic costs of applying. Third, their perceived chance of success likely influences their decision to apply; the preceding discussion indicates that their allowance rates could be higher or lower than traditional workers, but greater uncertainty about their fates may reduce the application rate from contingent workers.

A number of other factors may also contribute to lower application rates. Beyond the uncertainty about their odds of success, contingent workers may be less likely to be informed about the existence of SSDI, their eligibility for it, and how to assemble an effective case for disability. This information may be passed on to potential applicants through two avenues that contingent workers lack. First, contingent jobs are less likely to provide employer-sponsored health insurance benefits, so the contingent worker may lack regular access to a doctor who could recommend SSDI application and give the potential applicant a better sense of his chances. Second, contingent workers without consistent employment will miss out on information from employers, coworkers, or unions; some occupations or industries send a higher share of workers to the SSDI rolls and may be able to guide potential applicants based on the experience of similar workers.

In addition, contingent workers are less likely to be covered by employer-provided disability insurance or workers compensation. Beneficiaries of these programs are often required to apply to SSDI; contingent workers, therefore, miss out on this pressure.⁶

Contingent workers may also be less willing to risk leaving their jobs if they have already had difficulty finding their current arrangement. In the likely event that they are not awarded benefits – about three-quarters of SSDI applications are denied at the initial evaluation – any unsuccessful applicant would have to return to the labor force, which can be difficult after spending time away from work (Khan 2018).

Finally, the upsides of contingent work may also discourage application. In general, contingent workers report being satisfied with their independence and flexible scheduling, and contingent work may be a better fit for older individuals concerned with work-life balance; in

⁶ See, among others, Anand and Wittenburg (2017) for evidence that private long-term disability insurers require beneficiaries to apply to SSDI.

that case, continuing in contingent work is more attractive than SSDI application.⁷ Contingent work may also provide a better fit for people who can only work from time to time, especially those with episodic disabilities such as depression or bad backs. And some contingent workers are well-off individuals – working as consultants or freelancers, or starting a new business in semi-retirement – who may prefer to rely on their retirement savings than pay the psychic costs and effort of applying for SSDI.⁸

Factors contributing to higher application rates. On the other hand, contingent work may also encourage SSDI application due to its low opportunity cost. These jobs often have lower pay, less stability, and no health or retirement benefits, so potential applicants sacrifice little by leaving these jobs. While it has been documented that contingent workers are more likely to get injured (Benavides 2006; Smith et al 2010), they tend to lack workers compensation or temporary disability coverage, which may head off SSDI application for traditional workers who expect to recover. The opportunity to receive Medicare benefits after about two years on SSDI (or Medicaid if their income is low enough for Supplemental Security Income, or SSI) may also be attractive to uninsured contingent workers. Finally, it may simply be harder to hold down contingent work while struggling with health limitations; while traditional workers' employers may make accommodations that help them stay in their jobs, employers may not feel the same need to retain contingent workers.⁹

Data and Methodology

This study uses data from the 1996-2014 waves of the *Health and Retirement Study* (HRS) for Americans born in 1931-1959 who are 50 or older.¹⁰ The primary outcomes of interest are two measures of SSDI activity, among those who are SSDI-insured: 1) an indicator

⁷ GAO (2015); Bracha, Burke, and Khachiyani (2015); and Robles and McGee (2016) all show high levels of satisfaction among workers in contingent arrangements, though in some cases they are moderately less satisfied than traditional workers.

⁸ Bracha, Burke, and Khachiyani (2015) find that high net worth individuals frequently enter into informal or contingent arrangements.

⁹ Broten, Dworsky and Powell (2018) show that temporary and contract workers have higher employment risks after a work-place injury.

¹⁰ The 1992 and 1994 survey waves are excluded from this study, because some questions used to identify nontraditional jobs were not asked until 1996 – notably, the number of employees in a self-employed person's firm, whether the worker switched jobs between the prior survey wave and the current wave, and whether the respondent reported doing any paid work for a different employer between interviews.

equal to one if the individual ever applied to SSDI at older ages; and 2) an indicator for ever applying successfully at those ages. The sample window for ever applying (or applying successfully) starts at the first wave when the individual is observed working and is eligible to apply for SSDI, and continues until the individual applies to SSDI (or applies successfully), reaches age 65, or receives Social Security retirement benefits, whichever comes first. Individuals who never work, are never eligible to apply for SSDI, or who miss two consecutive waves are excluded from the sample.

To accurately determine whether an individual applied to and was awarded SSDI benefits, the analysis uses the *Form 831 Disability Records* file. This restricted dataset, which is linked to the information on assenting HRS respondents, contains administrative information on the date and outcome for every application that respondents have submitted to the SSDI and the Supplemental Security Income (SSI) programs.¹¹ Respondents who applied to SSDI or SSI before entering this study's sample are removed from the analysis, as prior exposure to the application process may influence an individual's subsequent decision to apply during the sample window.¹² Workers whose first applications were to SSI only are also excluded, as these workers were apparently not eligible to apply to SSDI at that time.¹³

The *831 File* also includes information on whether a successful application was allowed because the applicant's health conditions met the "medical listing," or whether the application had to proceed to evaluating the applicant's ability to hold a job in their past line of work or any other line (Wixon and Strand 2013). This analysis examines whether contingent workers differ from traditional workers in their likelihood of applying successfully with a condition on the medical listing.

¹¹ The HRS seeks permission from its respondents to link their household survey information to Social Security administrative records, including both disability applications and earnings records. Permissions are obtained simultaneously for both the *831* records and the earnings records starting in 2006. Most respondents gave permission for these linkages in 2006; any respondent who did, but who does not have a record in the *831 File*, must not have applied to SSDI or SSI. However, some respondents let their earnings record linkage permission lapse before 2006, which means that they may have applied to SSDI or SSI, but their record would not be in the HRS-*831* linked file. Therefore, the analysis excludes HRS respondents with earnings permissions that end before 2006 because we cannot determine whether these individuals actually applied to SSDI or SSI in the *831 File*.

¹² The analysis also uses the *Respondent Cross-Year Benefit File* to ensure that individuals that do not appear in the *831 File* but who do receive SSDI benefits are properly assigned as both applicants and awardees. The authors thank Jody Schimmel Hyde for this suggestion and for instructions on how to do this procedure.

¹³ These sample restrictions reduce the sample to about 5,900 unique individuals, out of the approximately 16,500 individuals who are ever sampled at ages 50-64 and have a valid match to the SSA administrative records. Most of the excluded individuals did not work in that age range.

Eligibility to apply for SSDI is calculated using Social Security earnings records. For respondents who agree to have their earnings history made available to researchers, the earnings records contain their quarters of coverage and earnings up to the taxable maximum for each year from 1951-2013.¹⁴ The earnings records are also used to calculate respondents' career average earnings – i.e., the Average Indexed Monthly Earnings from the Social Security benefits calculation – and their potential SSDI benefit.

The remaining information is derived from the HRS survey modules. The most important variable for this analysis is whether a worker is in a contingent arrangement. The HRS, like most household surveys, does not ask respondents directly whether they are in a contingent or alternative arrangement. Instead, this analysis relies on indirect information on whether a work arrangement is contingent. A worker with any of the following characteristics is considered to be contingent:

- Recent job instability, where the respondent is in the middle of frequent job changes and periods of unemployment;¹⁵
- Being paid on a daily basis, piecemeal, or by commission;¹⁶ and/or,
- Self-employed without any other employees.

These characteristics are strongly associated with being a contingent worker in the *National Longitudinal Survey of Youth, 1979 Cohort* (NLSY79), one of the few datasets that asks direct questions about contingent arrangements; the NLSY79 is not used because it does not include complete information on SSDI activity and is not linked to Social Security Administrative data.¹⁷

¹⁴ The analysis imputes earnings for respondents whose permission for earnings record linkage ends in 2006 or later by applying the average of the last five years of earnings in the record to any year in which the respondent reports working in the HRS. Individuals who never grant permission are excluded from the sample.

¹⁵ This variable considers both the 2-year period between the current interview and the previous interview, and the period between the current interview and the next interview. If both are periods of instability, the respondent is considered to have job instability in the current wave (i.e., the one in the middle). A period of instability is defined as:

- Their tenure in their job at wave t is less than two years;
- They had a non-employment gap between the jobs held at waves $t-1$ and t ; or
- They had three employers between interview $t-1$ and t , inclusive of the employers held at those interviews.

¹⁶ Although many non-contingent workers are paid by commission, in most years of the HRS, workers paid by commission are grouped together with those paid piecemeal. The results are similar when excluding this group from the contingent definition.

¹⁷ The NLSY79 results that show a strong association between these characteristics and contingent work are available upon request. Other datasets also include direct information on contingent work but have their own

The analysis focuses on the differences in SSDI outcomes for individuals who are ever contingent within the sample window (ages 50-64 and not yet receiving Social Security retirement or disability benefits), and for those who are never in this type of work. Members of the latter group, for conciseness, are labeled as “traditional workers” or “never-contingent workers.”

For the main outcome variables – indicators for ever applying, or ever applying successfully – the regressions are estimated as probit models; in these cases, the analysis reports marginal effects (i.e., average derivatives) and their standard errors. The form of the model is:

$$Y_i = \Phi[\beta_0 + \beta_1 \text{Contingent}_i + X_i' \gamma] + \varepsilon_i \quad (1)$$

where Φ denotes the standard normal cumulative distribution function (used with probit models).

Because contingent and traditional workers differ in numerous ways, the main analysis reports estimates from regression models that account for differences in personal characteristics (X_i). The characteristics are taken from the last three waves before the individuals either apply to SSDI or exit the sample.¹⁸ One important set of characteristics accounts for the differences in health status between contingent and traditional workers. The analysis incorporates three indicators of suboptimal health levels into the models. The first denotes whether the respondent has ever reported that his or her ability to work was limited by a health condition. The second indicates whether respondents have ever reported having some difficulty with their Activities of Daily Living (ADLs), including dressing, bathing, or getting in and out of bed by themselves. The third measure marks whether respondents have ever reported a chronic health condition, including cancer, lung disease, stroke, or a heart problem.

Other control variables include demographic controls such as gender, race, Hispanic ethnicity, educational attainment, marital status, and foreign birth; household income excluding the applicant’s current earnings; household net worth quintiles;¹⁹ indicators for receiving health

downsides. The *Current Population Survey* (CPS) has collected information on these arrangements only sporadically (no data were collected between 2005 and 2017), lacks information on SSDI application, and is not a true longitudinal survey. A special *American Life Panel* module used by Katz and Krueger (2016) has a small sample size at the ages where SSDI application is most relevant.

¹⁸ For those who never apply, the characteristics are taken from their 2nd- through 4th-to-last waves in the sample.

¹⁹ Household net worth includes the value of home equity.

insurance from a private/employer plan or the government (relative to being uninsured); indicators for having a working spouse and a self-employed spouse; birth cohort dummies; indicators for starting the sample window at a young age or never reaching age 62; an indicator for claiming to be retired before age 62; industry dummies; and indicators for ending one's sample window in the Great Recession (2010-2012) and post-dot com recession (2002-2004) years.

The model also includes the number of covered quarters of employment up to and including age 49 for respondent i , and the potential benefit level; these variables account for labor force attachment, as well as how the respondent stands to gain from applying. Finally, because respondents with more periods of work are also more likely to ever work in a contingent job, the model controls for the number of periods in the window in which the respondent worked.

The marginal effect $\partial Y / \partial Contingent$ represents the regression-adjusted difference in SSDI activity between contingent and traditional workers. Because contingent workers are likely self-selected, the estimated marginal effects should be interpreted as associations.

One way in which older contingent workers might be self-selected could be that caregiving demands (particularly on women) might lead them to exchange a traditional work arrangement for a contingent work arrangement. To assess how such selection might affect the estimated relationship between contingent work and SSDI activity, the project also estimates the models separately for men and women.

Results

Table 1 shows summary statistics consistent with the hypothesis that contingent workers are less likely to apply for and be awarded SSDI benefits, though the differences in the raw data are small and somewhat noisy.

Contingent workers are 6 percentage points less likely to be eligible to apply for SSDI; this difference is also highly statistically significant. Still, nearly 86 percent of older contingent workers are eligible to apply (that is, covered by SSDI), so they generally are able to accumulate sufficient experience in any combination of jobs to make SSDI application available to them should their health deteriorate.

Among those who are eligible to apply, the application rate is lower for contingent workers – 7.7 percent, compared to 8.4 percent for workers who are never contingent – but the

difference is not statistically significant. The difference is greater in the award rate – 5.5 percent of workers who are ever contingent at ages 50-64 end up on the disability rolls, compared to 7.1 percent of never-contingent older workers – but is just short of statistical significance.

The lower application rate may be due in part to contingent workers' lower potential SSDI benefits. They earn \$592 per month less during their careers than traditional workers, and as a result would receive \$165 less per month if they are awarded benefits; both differences are highly statistically significant.

While contingent workers are less likely to have an ADL limitation or suffer from a chronic illness (although not statistically significant), they are 4.4 percentage points more likely to have a work limitation; this difference is significant at the 5 percent level. In addition, they appear less likely to be awarded benefits because of a health condition that meets the medical listing, though this difference is not statistically significant.

Besides health, contingent workers differ in other ways from those who never work in contingent arrangements at older ages (Appendix Table A1). In some ways, contingent workers are of higher socioeconomic status: they are more likely to be white, hold a college degree, and have a working spouse; they are less likely to have retired before age 62; and their household income (not including their own income) tends to be higher. In other respects, they are less advantaged: their net worth tends to be lower compared to workers who were never contingent, they have less career experience (i.e., the number of covered quarters), and they are more reliant on a spouse for health insurance coverage. The fact that these differences between contingent and traditional workers go in both directions motivates the regression analysis.

The regression results for the full sample, presented in the first column of Table 2, show clear evidence that contingent workers are less likely to apply for and be awarded SSDI benefits, after accounting for their fundamental differences with traditional workers. The SSDI coverage rate is 5.7 percentage points lower among contingent workers. Among those eligible to apply, contingent workers are 2.2 percentage points less likely to apply for SSDI benefits, which is statistically significant at the 5-percent level. This difference, which is larger than the unadjusted rate seen in Table 1, represents about one-quarter of the mean application probability for never-contingent workers (8.4 percent).

Contingent workers are also less likely to be awarded benefits, by 2.4 percentage points, which is more precisely estimated than the application rate. This estimate is also substantively

greater: the estimated difference in awards is almost 35 percent of the mean award rate for never-contingent workers (7.1 percent). Contingent workers are about 0.9 percentage points less likely to be awarded benefits because of a health condition in the medical listings, or about half as likely as the average worker; this difference is statistically significant at the 5-percent level.

As suggested above, contingent workers may be less likely to apply because, all else equal, they earn \$537 less per month over their careers (Table 2, fourth row). As a result, if they are awarded SSDI benefits, their monthly checks will be \$150 less than traditional workers. These estimates are slightly smaller than in the unadjusted summary statistics.

The results are similar for the workers most likely to consider leaving the workforce for SSDI: those who ever report a work limitation, ADL limitation, or chronic condition (Table 2, second column). Their gap in insurance status is even wider than in the full sample: the contingent workers who would be most likely to apply to SSDI, given these health limitations, are about 9 percentage points less likely to be eligible to do so than similar traditional workers. The difference in application rates between contingent and traditional workers who report health issues is no longer statistically significant, but the point estimate of the marginal effect is basically unchanged; the estimate loses statistical significance because the standard error is larger due to the smaller sample size. Unhealthy contingent workers are also less likely to apply successfully, though not statistically significantly; they are, however, significantly less likely to be awarded benefits for conditions in the medical listings. Unhealthy contingent workers have even lower earnings and potential SSDI benefits than unhealthy traditional workers. These results suggest that contingent workers are less likely to apply when they are unhealthy, and that they have more trouble making the case they can no longer work, even when they have health issues.

Different types of contingent workers may face different opportunity costs in applying to SSDI, because contingent work varies in quality, stability, and the backgrounds of workers engaged in these jobs. Therefore, the estimates in Table 3 decompose the contingent worker sample into two groups: 1) self-employed individuals with no other employees, who most resemble independent contractors; and 2) other contingent workers who make frequent job changes or are paid irregularly, who most resemble those who work at a temporary agency or contract firm, and are in an on-call arrangement. Independent contractors are less likely to be eligible to apply than traditional workers; other types of contingent workers are just about as

likely to be eligible. Conditional on being eligible to apply, both groups are about 2 percentage points less likely to end up on the disability rolls than traditional workers, but for different reasons. Like other contingent workers, independent contractors are also less likely to apply than traditional workers, but independent contractors are more likely to be awarded benefits via the medical listings; the differences in these measures between other contingent workers and traditional workers, on the other hand, are small and statistically insignificant. The results also show that the earnings and potential benefits of independent contractors are much lower than for both other contingent workers (temps, contract workers, and on-call workers) and those who never work in either type of job.

Table 4 shows the results based on the frequency of contingent work, to study whether workers who hold these arrangements more frequently face different application decisions than those who are contingent only briefly. Both those who are contingent in just one wave and those who are contingent in multiple waves are about 5.7 percentage points less likely to be SSDI-insured. Workers who are observed in contingent work only one time are less likely to apply and less likely to be awarded benefits, both in general and via the medical listing. The stronger relationship with being contingent only one time in one's 50s and 60s could arise because of at least two possibilities. First, those who engage in contingent work multiple times may be better able to navigate the SSDI system without help from employers and benefit providers, because they are used to taking care of everything themselves. Second, those who are contingent only one time may be healthier and need SSDI less, perhaps because they leave career jobs at relatively young and healthy ages, but use independent contractor arrangements to extend their careers with more flexible and autonomous work.²⁰ Consistent with this idea, the other results in Table 4 show that the multiple-times contingent group has lower career earnings, and therefore lower potential benefits, than one-time contingent workers, which suggests that higher-earning workers extend their careers through independent contracting, as expected. Both groups' potential benefits, however, are well below the benefits received by traditional workers.

Finally, the results are fairly consistent between men and women (Table 5). Women have a somewhat greater gap between contingent and traditional workers in award rates, and, unlike

²⁰ It should be noted that only contingent work after the age of 50 can be observed. It may thus be the case that some of those in the once contingent group may have engaged in this type of work prior to entering the HRS, but that they are

men, the contingent-traditional gap in awards for medical listings is statistically significant for women. But the results do not suggest a major difference between the two groups, even though they may move into contingent work under very different circumstances.

Conclusion

This study provides estimates of how contingent work affects a major public benefits program: specifically, Social Security Disability Insurance. Although the job instability and low pay of contingent jobs may encourage SSDI application, other aspects of contingent work that discourage application appear to dominate, including lower eligibility rates, lower potential benefits, and less access to information that is normally provided to traditional workers by their employers, unions, and employee benefit providers. After accounting for differences in personal characteristics between contingent and traditional workers, those in contingent jobs at ages 50-64 are significantly less likely to apply to and be awarded SSDI benefits.

The results suggest that contingent workers miss out on some important aspects of the SSDI application and evaluation process that put them at a disadvantage relative to traditional workers. The lower application rates suggest that contingent workers might not be informed enough about their eligibility to apply for SSDI and about their chances of success. The low award rates may also indicate that contingent workers need better information about the availability of help with the application process, including SSA's provision of disability advocates. Reforms to income-reporting regulations would also help ensure contingent workers' earnings are taxed and reported to Social Security, which would increase SSDI coverage rates and ensure that workers get their full earned benefit if they are allowed on the program.

While this study provides an initial examination of the relationship between contingent work and SSDI, further research could inform policymakers about more specific ways in which workers with health limitations interact with both contingent work and SSDI. One potential topic is examining the extent to which workers with episodic conditions – such as depression or back pain – are able to use contingent work when their conditions allow them to work, which could allow them to avoid SSDI application. Another open question is whether contingent work may help workers who have difficulty satisfying the health-related requirements of their job find

more appropriate matches for their abilities.²¹ A third possibility worth examining is the extent to which SSDI beneficiaries may use contingent work as a bridge back into the workforce. This research likely requires more comprehensive data about contingent work arrangements for a larger sample of workers, but the results of these efforts would help policymakers better understand how contingent work affects SSDI.

²¹ Rutledge, King, and Zulkarnain (2018, forthcoming) finds that occupations with higher rates of workers reporting health-related difficulties with required tasks see their workers subsequently receive SSDI benefits at greater rates.

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Table 1. *Averages of SSDI Outcome Variables for Contingent vs. Never-Contingent Older Workers*

	Job type at ages 50-64		Difference (ever-never)
	Ever contingent	Never contingent	
SSDI coverage rate	86.0%	91.8%	-5.7***
Application rate	7.7%	8.4%	-0.7
Award rate	5.5%	7.1%	-1.6
Share awarded benefits from medical listing	1.2%	1.9%	-0.6
Average Indexed Monthly Earnings	\$3,304	\$3,895	-\$592***
Potential SSDI benefit	\$1,417	\$1,581	-\$165***
Health variables			
Work limitation	24.9%	20.5%	4.4**
ADL limitation	22.1%	23.1%	-1.1
Chronic illness	7.7%	7.9%	-0.3
Sample size (insured)	1,156	4,056	
Sample size (full sample)	1,388	4,533	

Note: ** p<0.05, *** p<0.01.

Source: Authors' calculations from the *Health and Retirement Study*, 1996-2016 waves, linked to the *Form 831 Disability Records* file.

Table 2. *Regression-Estimated Differences in SSDI Outcomes between Contingent and Never-Contingent Workers*

		Full sample	Unhealthy workers
SSDI coverage rate	Marginal Effect	-0.057***	-0.092***
	SE	(0.013)	(0.019)
	N	5,910	2,281
Application rate	Marginal Effect	-0.022**	-0.025
	SE	(0.009)	(0.019)
	N	5,201	1,959
Award rate	Marginal Effect	-0.024***	-0.027
	SE	(0.008)	(0.018)
	N	5,203	1,979
Share awarded benefits from medical listing	Marginal Effect	-0.009**	-0.018**
	SE	(0.004)	(0.007)
	N	5,203	1,979
Average Indexed Monthly Earnings	Marginal Effect	-537.3***	-621.7***
	SE	(72.5)	(111.2)
	N	5,203	1,979
Potential SSDI benefit	Marginal Effect	-150.6***	-175.3***
	SE	(19.6)	(29.6)
	N	5,203	1,979

Note: ** p<0.05, *** p<0.01. The regression models also include demographic, socioeconomic, and job characteristics; see the text for the full list.

Source: Authors' estimates from the *Health and Retirement Study*, 1996-2016 waves, linked to the *Form 831 Disability Records* file.

Table 3. *Regression-Estimated Differences in SSDI Outcomes between the Never-Contingent Workers, One-Person Firms, and Other Contingent Workers*

		One-person firms	Other contingent
SSDI coverage rate	Marginal Effect	-0.098***	-0.015
	SE	(0.019)	(0.016)
	N	5,910	
Application rate	Marginal Effect	-0.027**	-0.017
	SE	(0.012)	(0.010)
	N	5,201	
Award rate	Marginal Effect	-0.021**	-0.025***
	SE	(0.010)	(0.009)
	N	5,203	
Share awarded benefits from medical listing	Marginal Effect	-0.013***	-0.005
	SE	(0.004)	(0.005)
	N	5,203	
Average Indexed Monthly Earnings	Marginal Effect	-817.6***	-289.5***
	SE	(95.2)	(90.8)
	N	5,203	
Potential SSDI benefit	Marginal Effect	-221.9***	-87.6***
	SE	(25.3)	(24.8)
	N	5,203	

Note: ** p<0.05, *** p<0.01. The regression models also include demographic, socioeconomic, and job characteristics; see the text for the full list.

Source: Authors' estimates from the *Health and Retirement Study*, 1996-2016 waves, linked to the *Form 831 Disability Records* file.

Table 4. *Regression-Estimated Differences in SSDI Outcomes between Contingent and Never-Contingent Workers, by Frequency of Contingent Work*

		Contingent once	Contingent 2+ times
SSDI coverage rate	Marginal Effect	-0.057***	-0.057***
	SE	(0.015)	(0.018)
	N	5,910	
Application rate	Marginal Effect	-0.027***	-0.014
	SE	(0.010)	(0.013)
	N	5,201	
Award rate	Marginal Effect	-0.036***	-0.007
	SE	(0.008)	(0.013)
	N	5,203	
Share awarded benefits from medical listing	Marginal Effect	-0.011***	-0.006
	SE	(0.004)	(0.007)
	N	5,203	
Average Indexed Monthly Earnings	Marginal Effect	-438.1***	-668.8***
	SE	(88.6)	(98.7)
	N	5,203	
Potential SSDI benefit	Marginal Effect	-125.5***	-183.9***
	SE	(24.2)	(26.1)
	N	5,203	

Note: *** $p < 0.01$. The regression models also include demographic, socioeconomic, and job characteristics; see the text for the full list.

Source: Authors' estimates from the *Health and Retirement Study*, 1996-2016 waves, linked to the *Form 831 Disability Records* file.

Table 5. *Regression-Estimated Differences in SSDI Outcomes between Contingent and Never-Contingent Workers, by Gender*

		Women	Men
SSDI coverage rate	Marginal Effect	-0.064***	-0.046***
	SE	(0.017)	(0.017)
	N	3,154	2,715
Application rate	Marginal Effect	-0.028**	-0.026**
	SE	(0.012)	(0.011)
	N	2,707	2,454
Award rate	Marginal Effect	-0.038***	-0.022**
	SE	(0.010)	(0.010)
	N	2,709	2,494
Share awarded benefits from medical listing	Marginal Effect	-0.016***	-0.006
	SE	(0.005)	(0.005)
	N	2,569	2,453
Average Indexed Monthly Earnings	Marginal Effect	-475.4***	-580.5***
	SE	(93.2)	(105.7)
	N	2,709	2,494
Potential SSDI benefit	Marginal Effect	-147.9***	-148.5***
	SE	(26.7)	(27.4)
	N	2,709	2,494

Note: ** p<0.05, *** p<0.01. The regression models also include demographic, socioeconomic, and job characteristics; see the text for the full list.

Source: Authors' estimates from the *Health and Retirement Study*, 1996-2016 waves, linked to the *Form 831 Disability Records* file.

Table A1. *Summary Statistics*

	Full sample	Ever contingent	Never contingent
Applied for SSDI benefits	0.082	0.077	0.084
Awarded SSDI benefits	0.067	0.055	0.071
Share awarded benefits from medical listing	0.017	0.012	0.019
Potential SSDI benefit	\$1,543	\$1,417	\$1,581
AIME	\$3,757	\$3,304	\$3,895
Ever contingent	0.234	1	0
Ever in a one-person firm	0.110	0.472	0
Ever other contingent	0.123	0.528	0
Contingent once	0.128	0.547	0
Contingent multiple times	0.106	0.453	0
Number of waves working	3.1	3.4	3.1
Number of covered quarters	103.3	100.7	104.1
Work limitation	0.215	0.249	0.205
ADL limitation	0.079	0.077	0.079
Chronic illness	0.229	0.221	0.231
Average household income excluding own earnings	\$69,702	\$79,456	\$66,730
Net worth	\$577,372	\$572,540	\$578,844
Window ends in 2010-2012	0.217	0.243	0.209
Window ends in 2002-2004	0.123	0.140	0.118
High school graduate	0.316	0.284	0.325
Some college or more	0.615	0.646	0.606
Female	0.483	0.465	0.489
Black	0.063	0.041	0.070
White	0.850	0.883	0.840
Other race	0.029	0.025	0.030
Hispanic	0.058	0.051	0.059
Foreign born	0.074	0.059	0.078
Marital status			
Married or partnered	0.758	0.749	0.761
Separated or divorced	0.154	0.174	0.147
Widowed	0.033	0.024	0.036
Never married	0.055	0.054	0.056
Working spouse	0.623	0.640	0.618
Self-employed spouse	0.154	0.171	0.149

-continued-

Table A1. *Summary Statistics* (cont'd)

	Full sample	Ever contingent	Never contingent
Source of health insurance			
Public	0.047	0.068	0.040
Own private	0.676	0.516	0.725
Spouse's employer	0.171	0.251	0.147
Uninsured	0.106	0.165	0.087
Industry			
Services	0.430	0.356	0.452
Resource extraction	0.018	0.014	0.019
Manufacturing	0.251	0.145	0.283
Finance, insurance, and real estate	0.059	0.056	0.060
Multiple industries	0.119	0.315	0.059
Retired before age 62	0.070	0.058	0.073
Never observed under age 62	0.009	0.004	0.010
Below median age for birth cohort	0.314	0.318	0.313
Birth cohorts			
Original HRS (1931-41)	0.139	0.119	0.145
War Babies (1942-47)	0.275	0.366	0.248
Early Boomers (1948-53)	0.319	0.339	0.312
Mid Boomers (1954-59)	0.267	0.177	0.295
Sample size	5,203	1,152	4,055

Source: Authors' calculations from the *Health and Retirement Study*, 1996-2016 waves, linked to the *Form 831 Disability Records* file.

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