Contingent and Alternative Employment: Lessons from the Contingent Worker Supplement, 1995–2017

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October 2020

Abstract

The Contingent Worker Supplement (CWS) to the Current Population Survey—administered six times between 1995 and 2017—is uniquely valuable in providing detailed information on a consistent set of work arrangements in a large, nationally representative survey. Drawing on data from all six CWS waves, we provide an in-depth picture of the nature of contingent and alternative work and whether and how employment arrangements are changing in the United States. We exploit questions in the CWS to distinguish between three types of self-employment, including two types of independent contractors. We also link data on individuals in the CWS to their data in the CPS from the prior and the subsequent month to better understand transitions into and out of contingent and alternative work arrangements.

Our analyses reveal considerable heterogeneity in the characteristics of workers in various work arrangements and indicators of the quality of those jobs, including across types of self-employment. Although the CWS shows no overall trend increase in any contingent or alternative work arrangement, our detailed analyses reveal some interesting subgroup trends within certain arrangements. Additionally, we show that individuals who have lost their jobs, are unemployed, or are out of the workforce but want employment commonly end up in contingent and alternative work arrangements. We find, however, that dissatisfaction with alternative work arrangements is relatively high and subsequent employment rates are relatively low, particularly among those who had transitioned to contingent, temporary help, day laborer, and on-call jobs. This descriptive evidence raises concerns about their use as stepping stones to regular employment, and the issue warrants further study.

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I. INTRODUCTION

The Contingent Worker Supplement (CWS) to the Current Population Survey (CPS), first administered in 1995, was motivated by concerns that the traditional employment relationship— one in which an employer directly hires workers as employees and provides consistent hours, earnings, and benefits—was being undermined. The jobs replacing the traditional employment arrangement, many believed, were associated with less stable employment or generally were worse in terms of pay, benefits, and other indicators of job quality.

The CWS was designed to measure contingency—i.e., whether the job was temporary in nature—and several alternative work arrangements, including temporary agency, on-call, day laborer, contract company, and independent contractor work. After its inaugural launch in February 1995, the CWS was repeated as a February supplement in 1997, 1999, 2001, and 2005. Following a twelve-year hiatus, the survey was administered again in May 2017. As with the earlier supplements, the impetus for the 2017 CWS was the concern that certain alternative work arrangements—this time, particularly independent contracting or so-called "gig" jobs—were growing at the expense of the traditional employee-employer relationship and lowering the quality of the jobs held by American workers. The 2017 CWS repeated the questions about contingent and alternative employment asked in earlier waves and added several questions to identify work intermediated by online platforms or mobile apps such as Upwork and Uber, arrangements that did not exist when the prior supplements were administered.

The CWS is uniquely valuable in providing detailed information on a consistent set of work arrangements in a large nationally representative survey over a period of more than two decades. Additionally, because the CWS is a supplement to the CPS, it is possible to link a rich

set of demographic and job characteristics to the detailed work arrangement information collected in the supplement. While prior studies have provided a good deal of descriptive evidence based on selected waves of the CWS and Katz and Krueger (2019b) document broad trends in the prevalence of alternative work arrangements across all six waves, this paper makes use of all of the available data to provide an in-depth picture of the nature of contingent and alternative work and whether and how employment arrangements are changing in the United States. We examine the trends in both contingent and alternative work arrangements over the period from 1995 through 2017, describe the characteristics of workers in each of the arrangements, and use several to approaches assess the quality of jobs in each arrangement.

Several additional analyses in this paper provide new insights into contingent and alternative work arrangements and their progression over time. Unlike most previous studies, we exploit questions in the CWS to distinguish between three types of self-employment, including two types of independent contractor arrangements, and show how the types of workers and job quality measures often vary across self-employment arrangements. We also examine whether and how the worker and job characteristics associated with alternative arrangements have changed over time, with a focus on the largest arrangement, independent contracting. Additionally, we link data on individuals in the CWS to their data in the CPS from the prior and the subsequent month to better understand transitions into and out of contingent and alternative work arrangements.

In the next two sections, we review findings from previous studies based on the CWS and describe the CWS data and methods used in our analyses. Sections IV through VIII of the paper contain our analyses of basic trends in contingent and alternative work arrangements, the worker and job characteristics of contingent and alternative work arrangements, the quality of these jobs,

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trends in the worker and job characteristics of alternative work arrangements, and pathways into and out of contingent and alternative work arrangements. We conclude with a synthesis of our findings and a discussion of limitations of the CWS, complementary sources of information, and some directions for future research.

II. WHAT HAS PREVIOUS RESEARCH USING CWS DATA FOUND?

Although the CWS collects a considerable amount of information about contingent and alternative work arrangements, the topline numbers showing the percent of the workforce in different alternative work arrangements have received the greatest attention. These received special scrutiny when the Bureau of Labor Statistics (BLS) published the results of the 2017 CWS. Many observers had believed the data would show a substantial increase compared to 2005 in the share of the workforce in alternative arrangements and especially in the share working as independent contractors. This belief had been bolstered by evidence from tax data and other financial data, as well as from a new household survey conducted by two prominent academic researchers, suggesting that income from non-employee work arrangements had become more common (e.g., Katz and Krueger, 2016; Farrell and Greig, 2016a, 2016b; Jackson, Looney and Ramnath, 2017; Farrell, Greig and Hamoudi, 2018; Abraham et al. 2020; Abraham et al. forthcoming). At least with respect to the overall numbers, however, the CWS data showed no increase (Katz and Krueger, 2019a, 2019b; Abraham et al. 2020).

In a paper published shortly after the release of the first wave of CWS data collected in 1995, Polivka (1996b) compared the characteristics of people in contingent employment to those in standard employment arrangements. Workers age 16–24 were especially likely to be contingent, but workers age 65 and older also had above average rates of contingency. Several

relatively disadvantaged groups—Hispanics, Blacks, and people with less than a high school education—were overrepresented among the contingent workforce, but so too were people with advanced degrees. Part-time workers were much more likely than full-time workers to be contingent. Contingent workers also were overrepresented among workers in professional service, administrative support, and manual labor occupations and among those working in the services or construction industries. Studies that have examined the data for the 1997, 1999, 2005, and 2017 waves have found generally similar patterns (Hipple, 1998, 2001; Applebaum, Kalleberg, and Rho, 2019).

Alternative work as defined in published BLS statistics encompasses a variety of work arrangements—temporary agency workers, on-call workers, contract company workers, and independent contractors—and there are considerable differences in the characteristics of workers in the different categories. Independent contractors are a much larger group than any of the others. In a study analyzing data from the 1995 CWS, Cohany (1996) found that independent contractors skewed older, White, and male. In addition, they were more educated than regular workers and more likely to work part-time. They were concentrated in certain occupations, including writers and artists, insurance and real estate sales agents, and construction trade employees. They also were more likely to be found in certain industries, including construction, finance, insurance and real estate, and services. On-call workers were disproportionately either young (in their teens) or old (age 65 or older) and much more likely than workers in standard arrangements to work part-time. The probability of working for a temporary agency was highest at age 20-24 and dropped sharply among those age 35 and older. Temporary agency workers were disproportionately Black and less educated. They were especially likely to work in administrative support or machine operator occupations. The characteristics of contract company

workers differed less from those of workers in standard arrangements. Again, studies examining CWS data for later years have found generally similar results (Cohany, 1998; DiNatale, 2001; Applebaum, Kalleberg, and Rho, 2019; Katz and Krueger, 2016).

A central reason for interest in contingent and alternative work arrangements is the perception that such jobs are of lower quality than standard jobs. Metrics of job quality analyzed in past research using CWS data have included objective indicators such as pay, whether the worker has health insurance, and whether the worker has a retirement plan, together with subjective indicators such as whether the worker would prefer a different type of work. Hipple and Stewart (1996a, 1996b) found that, in 1995, contingent workers, temporary agency workers, and on-call workers all had lower median weekly earnings than workers in standard arrangements, whereas the median weekly earnings of independent contractors and contract company workers were higher. Workers who were contingent or in any of the alternative arrangements were less likely to have health insurance and less likely to have a retirement plan. Even if workers in contingent or alternative arrangements are less well compensated than regular workers, other aspects of contingent or alternative jobs still could make them attractive. Data from the 1995 CWS, however, showed that substantial majorities of contingent workers and temporary agency workers and more than half of on-call workers would have preferred a different type of work. Only among independent contractors did a clear majority say they preferred their current arrangement (Cohany, 1996; Polivka, 1996c).[1] Other researchers have reported similar patterns, which seem largely to have persisted over time (Hipple, 1998; Kalleberg, Reskin, and Hudson, 2000; DiNatale, 2001; Addison and Surfield 2007; Katz and Krueger, 2016, 2019a; Applebaum, Kalleberg, and Rho, 2019).

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[1] As we discuss below, preferences for a different type of work were not collected for contract company workers.

Related to these indicators of job quality, several studies have examined the stability of alternative work arrangements as compared to regular jobs. Analyzing CWS data for 1995, Cohany (1996) reports that only about a quarter of temporary agency workers and about half of contract company and on-call workers have been on their job a year or more, compared to about two-thirds of workers in standard arrangements. Independent contractors are different—four out of five of them had been on their job a year or more. Several studies have documented the considerable overlap between being in an alternative work arrangement and being a contingent worker. Cohany (1996) finds that about two-thirds of temporary agency workers, about one-third of on-call workers and about one in five contract company workers are contingent under the broadest BLS definition. In contrast, similar to workers in regular jobs, less than 5 percent of independent contractors are contingent. While the precise numbers vary from year to year, analyses of CWS data for later waves have found generally similar patterns regarding short job tenure and contingency (Cohany, 1998; DiNatale, 2001).

Another way to assess the stability of alternative work arrangements is to look at how likely workers are to exit the job. Houseman and Polivka (2000) analyze data from the February 1995 CWS linked to February 1996 CPS data for the same people. They find that, "except for independent contractors, workers in [alternative]… arrangements have less job stability than those in regular full-time arrangements in the sense that they are more likely to switch employers, become unemployed, or involuntarily drop out of the labor force within a year." Addison and Surfield (2009) link individual records from the February 1997, 1999, 2001, and 2005 CWS to February 1998, 2000, 2002, and 2006 CPS records for the same people and analyze the data for this pooled sample. In their data, temporary agency workers, on-call workers, independent contractors, and contract company workers are all more likely than regular

workers to be out of the labor force one year later, but only temporary agency workers and on-call workers are more likely to be unemployed. Although they are more likely to have withdrawn from the labor force, independent contractors and contract company workers, if anything, are less likely than regular workers to be unemployed when interviewed again the following year

Finally, evidence that people who entered employment after having lost a job are more likely than other job-takers to be in a contingent or alternative arrangement may be an additional indication that these jobs are of lower quality. Polivka (1996c) uses information collected in the 1995 CWS to learn about these transitions. Among those in her sample with prior employment and less than three years of tenure on their current job, a larger share of temporary agency workers, on-call workers, and contract company workers had lost their previous job or had a temporary job end than was case for workers in regular jobs. In contrast, independent contractors and workers in standard arrangements were similarly likely to have lost a previous job or had a previous job end. Farber (1999) links data from the February 1994 and 1996 CPS Displaced Worker supplements to data for the same people from the February 1995 and 1997 CWS. He finds that, among adults age 20–64, people who had been displaced from a previous job were more likely than other employed people to be in a temporary job, a group he defines to include people who were temporary agency employees, on-call workers, day laborers, contract company workers, or direct hire temporaries. Addison and Surfield (2006) analyze data from the month-earlier CPS interview linked to the CWS responses collected in 1995, 1997, 1999, and 2001. They find that, among people working at the time of the CWS interview, those who had been unemployed the previous month were more likely to be in an alternative arrangement, by which they mean employment as a temporary agency worker, direct hire temporary, on-call worker, contract company worker, or independent contractor. Finally, Katz and Krueger (2017) report

that, among people employed at the time of the February 2005 CWS, people who had been unemployed in February 2004 were more likely to be working in an alternative arrangement.

Although a number of previous studies have examined contingent or alternative work arrangements as of a particular point in time or studied a specific aspect of contingent or alternative work, no single paper synthesizes what the CWS can tell us about these various work arrangements. This paper uses the data from all six waves of the CWS to provide a comprehensive review of trends in contingent and alternative work as measured in the survey, the prevalence of contingent and alternative arrangements among workers in different demographic groups, the quality of contingent and alternative jobs, and the circumstances associated with moving into and out of contingent and alternative employment. In contrast to the existing literature, we distinguish between independent contractors who identify themselves as employees in the monthly CPS and those who identify themselves as self-employed, a distinction we show it is important to make. Our analysis of movements into and out of contingent and alternative work arrangements adds to the existing literature's consideration of transitions between employment and unemployment by more fully considering transitions between employment and out of the labor force, providing a more balanced perspective on contingent and alternative jobs. An important development since the first fielding of the CWS in 1995 has been the emergence and growth of online platforms and mobile apps designed to match workers directly with available work. Questions about this sort of electronically mediated work were added to the CWS in 2017. Respondents were asked whether they had found short in-person tasks or jobs or short online tasks or projects through companies that connected them directly with customers using a website or mobile app. As will be discussed in the next section of the paper, survey respondents appear to have had considerable difficulty interpreting these questions,

in some cases answering "yes" when they should not have done so. The BLS used other information collected during the interview to edit the responses. Based on the edited responses, about 1 percent of those working in May 2017 engaged in electronically mediated work during the survey reference week. This estimate is roughly in line with estimates from other sources showing low, if rising, rates of participation in this work (see, e.g., Farrell, Greig, and Hamoudi, 2018; Abraham, Hershbein, and Houseman, in press).

III. OVERVIEW OF THE CONTINGENT WORKER SUPPLEMENT

The CWS is a supplement to the Current Population Survey (CPS) that has been fielded six times since the mid-1990s—in February of 1995, 1997, 1999, 2001, and 2005 and in May of 2017—to collect more detailed information about work arrangements than can be collected in the monthly CPS. The sample for the CWS consists of people either age 15 and older (in each of the first five survey waves) or age 16 and older (in 2017) who are categorized as employed in the monthly CPS.[2] For consistency both with published CWS statistics and across years, our analysis is restricted to those age 16 and older throughout. Households selected for the CPS are in the sample for four months (month-in-sample or MIS1 through MIS4), out for eight months, and then back for another four months (MIS5 through MIS8). In 2001 and 2005, households in MIS4 and MIS8 were excluded from the CWS sample.

In 1997, 1999, and 2001, about 48,000 households were interviewed for the monthly CPS; in 1995 and 2017, about 56,000 households were interviewed; and, in 2005, about 57,000 households were interviewed. The interviewed households included roughly 94,000 to 112,000

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[2] People who did not have a job during the survey reference week, but looked for work within the previous 12 months and were available for work during the reference week also are asked a few questions on the CWS, but we do not use the responses to these questions in our analysis.

eligible respondents, depending on the year. Information about nonresponse is not reported in the documentation for the 1995 CWS. Taking into account both nonresponse to the basic monthly CPS and supplement nonresponse, the CWS nonresponse rate was 14.0 percent in 1997, 15.5 percent in 1999, 13.5 percent in 2001, 15.5 percent in 2005, and 23.0 percent in 2017.

The questions asked on the CWS pertain primarily to a person's main job. The main exceptions to this general statement are the questions about electronically mediated work that were added to the survey in 2017. These questions refer to any such work a person may have done, whether or not it was part of their main job. Because the CWS is a supplement to the CPS, all of the standard demographic information about survey respondents collected in the monthly CPS (age, gender, race, ethnicity, and educational attainment) as well as the occupation and industry of each respondent's main CPS job are available for analysis. In addition, except in 2001 and 2005, information on hours and earnings collected from CPS sample members in the so-called outgoing rotation groups is available for a quarter of the CWS sample.[3]

As suggested by its name, a central purpose of the CWS is to measure the contingency of the respondent's main job. The survey asks several questions related to whether people believe they could continue in their jobs if they chose—that is, whether they believe they have an explicit or implicit contract for continued employment. Those identified in the basic CPS either as a wage and salary worker or as self-employed are asked these questions. The Bureau of Labor Statistics (BLS) defines contingency in three different ways (Bureau of Labor Statistics, 1995; Polivka, 1996a, 1996b):

- Definition 1: Wage and salary workers who have been at their job for a year or less and do not expect they could continue at the job for more than another year. For temporary help agency workers and contract company workers, time on the job and

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[3] Data on hours and earnings from the CPS are not available in 2001 and 2005 because CPS households in MIS4 and MIS8 were not part of the CWS sample.

expected remaining time on the job refer to the firm that employs the individual (the temporary agency or contract company, not the client).

- Definition 2: Includes all workers covered by Definition 1. Adds self-employed workers and independent contractors who have been at their job for a year or less and do not expect they could continue at the job for more than another year. For temporary help agency workers and contract firm workers, time on the job and expected remaining time on the job refer to the client where the individual is assigned.

- Definition 3. Includes all workers covered by Definition 2. Adds wage and salary workers who do not expect their job to last, even if they have been at the job for more than a year and do not expect the job to end within a year.

In most of our analysis, we use the third definition of contingency, the broadest of the three definitions.

In addition to characterizing jobs according to whether the respondent could continue with the job if they chose, the CWS asks questions designed to determine whether an individual works in any of several alternative work arrangements (Bureau of Labor Statistics, 1995; Polivka, 1996a; Cohany, 1996):

- Temporary agency worker. Person who is paid by a temporary help agency, whether or not their job is temporary.

- On-call worker. Person who is called to work only as needed, although the person can be scheduled to work for several days or weeks in a row. A person with regularly scheduled work that might include periods of being "on call" to perform work at unusual hours, such as a doctor, is not included in this category.

- Day laborer. Person who obtains work by waiting at a place where employers pick up people to work for a day.

- Contract company worker. Person employed by a company that provides them or their services to others under contract. The BLS reports estimates for the subset of contract company workers who usually are assigned only to one customer and usually work at the customer's worksite.[4]

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[4] The BLS uses this narrow definition of contract company worker because it was deemed that respondents could not reliably report on contract arrangements for broader definitions that include working for multiple clients and off-site.

- <u>Independent contractor</u>. Person who considers him/herself to be an independent contractor, independent consultant, or freelance worker, whether he or she is classified as self-employed or as a wage and salary worker in the monthly CPS.

These five categories are constructed to be largely exclusive of one another, except that a small number of on-call workers also are categorized by the BLS as contract company workers. Although the survey asks about day laborers, they are a small group and published BLS statistics do not report information about them separately.[5] For this reason, we include them in selected analyses only.

We use the information on work arrangements from the CWS together with information collected as part of the main CPS interview to categorize employed individuals into the following eight mutually exclusive categories:

- Temporary agency worker
- On-call worker
- Day laborer
- Contract company worker
- Wage and salary independent contractor
- Self-employed independent contractor
- Self-employed, not an independent contractor
- Employee, not in an alternative work arrangement

In our categorization, we assign everyone who says they are an on-call worker to that category, even if they also say they are a contract company worker. Like the BLS in its reporting of CWS data, we use a narrow definition of contract company work, including only those whose employers contract out them or their services, who work primarily for one client, and who primarily work at the client's worksite.

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[5] Information on day laborers was reported together with that for on-call workers in the release of published statistics for 1995. They have been omitted from the statistics on alternative work arrangements reported by the BLS in later years' releases, although data on this group are available in the CWS public microdata files.

The independent contractor measure in the CWS comes from two sets of questions—one asked of those who reported in the main CPS that they were self-employed and the other asked of those who reported working for an organization in the main CPS. Those who report working for an organization may be more likely to rely primarily on one client for work and to differ in other systematic ways from those who report being self-employed. We term these workers "wage and salary independent contractors" and distinguish them in most analyses from independent contractors classified as self-employed in the main CPS, a group we term "self-employed independent contractors." We also present results for the self-employed who did not report being independent contractors. These other self-employed individuals are more likely to own or run businesses with significant employment and/or capital investments. Owing to data limitations, analyses often group all of the self-employed into one category. One contribution of our paper is to exploit the more detailed information in the CWS to analyze differences across these three types of independent contractor and other self-employment arrangements.

The CWS contains considerable additional information regarding respondents' jobs and job histories. One set of questions asks those who are in contingent jobs or employed under an alternative arrangement whether they would have preferred a different sort of job. Those in contingent jobs are asked whether they would have preferred a job that is permanent rather than temporary. Temporary help agency workers are asked whether they would have preferred to work for a different type of employer. On-call workers and day laborers are asked whether they would have preferred a job with regularly scheduled hours. And independent contractors and the self-employed are asked whether they would have preferred a job where they worked for

someone else.[6] In each case, the question about preferences is followed by a question about why the person is working in a contingent or alternative job.

The CWS also collects detailed CPS-type information about selected job characteristics that augments the information collected in the monthly CPS. All workers classified in a contingent or alternative work arrangement and a small number of other workers are queried about their earnings in the CWS; as noted earlier, all workers in the CPS out-going rotation groups are asked about their earnings as part of the basic monthly CPS.[7] Questions about health insurance, retirement plans, and membership in a union or employee association are asked of all CWS respondents. Whether those working in alternative arrangements are more likely than people in regular jobs to describe their work as contingent can provide insights into the perceived job security associated with different arrangements. The CWS also includes questions about whether those in alternative arrangements are looking for other work and what they have done to find it.

In addition to the information collected through the CWS questionnaire, the CWS responses can be linked to the following month's CPS responses for the same individuals, providing information on whether those in alternative employment arrangements are more likely to become unemployed, leave the labor force, or change jobs. In 1995, 1997, 1999, and 2017, people in all eight CPS month-in-sample (MIS) groups were interviewed for the CWS, meaning up to 75 percent of the CWS sample are potentially matchable to their following month CPS responses. In 2001 and 2005, those in MIS4 and MIS8 were not part of the CWS sample,

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[6] Contract company workers are not asked about their job preferences nor are wage and salary workers who are not in an alternative work arrangement

[7] We have asked BLS to clarify who among those not in a contingent or alternative work arrangement was asked earnings questions in the CWS. At the time of this writing, however, we have not received an answer because the government buildings are closed and the CWS expert is unable to access needed documentation.

meaning that the full CWS sample potentially could be matched to the next month's CPS. In practice, actual match rates are several percentage points below these theoretical maximums, reflecting changes in who lives in a particular housing unit from one month to the next as well as survey nonresponse.

Other information of interest comes from a series of questions in the CWS related to how respondents ended up in their current jobs. Everyone who has been in their current job less than three years is asked about what they were doing before they took that job. This information allows us to distinguish several pathways into the current job—quitting a previous job; losing a previous job or having a temporary job end; otherwise leaving a previous job; entering or re-entering the labor force to look for work; or taking the job directly from having been out of the labor force.

Additional insights regarding the pathways into contingent and alternative employment arrangements can be obtained by linking the CWS responses to the responses for the same individuals in the previous month's CPS. These linked data can tell us whether those entering employment from unemployment or out of the labor force are more likely to be found in contingent or alternative arrangements than those who had been employed in the previous month. Given the CPS rotation pattern and the MIS groups eligible for the CWS, in 1995, 1997, 1999, and 2017, up to 75 percent of CWS respondents are potentially linkable to their previous month CPS response; in 2001 and 2005, that maximum is 67 percent. Again, actual match rates are several percentage points below these theoretical maximums.

Finally, the 2017 supplement added questions about both in-person and online work intermediated by a mobile app or online platform. Specifically, the question about electronically mediated in-person work asked:

Some people find short, IN-PERSON tasks or jobs through companies that connect them directly with customers using a website or mobile app. These companies also coordinate payment for the service through the app or website. For example, using your own car to drive people from one place to another, delivering something, or doing someone's household tasks or errands. Does this describe ANY work you did LAST WEEK?

The question about electronically mediated online work asked:

Some people select short, ONLINE tasks or projects through companies that maintain lists that are accessed through an app or a website. These tasks are done entirely online, and the companies coordinate payment for the work. For example, data entry, translating text, web or software development, or graphic design. Does this describe ANY work you did LAST WEEK?

If a respondent answered "yes," to either question, a follow-up question asked whether the work was performed as part of the person's main job, as part of a second job, or was additional work for pay.

The intent of these questions was to capture arrangements in which a worker uses an app or platform to connect directly to customers or short-term jobs or tasks and also is paid through the app or platform. As already noted, in contrast to the other questions on the survey, these questions pertain to work on any job a person held during the survey reference week, whether or not it is their main job. In reviewing the responses to these questions, BLS staff concluded that some respondents had not fully understood the questions and reported activities that should not have been included. Examples of the types of problematic responses identified included affirmative responses from a real estate agent who obtained customers through the web, a gravel delivery person who used an app to obtain route directions, and a fast-food worker who prepared orders that customers placed through an app. In view of the problems identified, BLS staff undertook a careful review of the data, devising a set of editing rules intended to identify and remove false positive responses to the questions about electronically mediated work. More than two-thirds of those originally answering "yes" to one or both of the questions about

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electronically mediated work were determined to be false positives and the share of workers estimated to have done electronically mediated work fell from 3.3 percent in the unedited data to 1.0 percent in the edited data (Bureau of Labor Statistics, 2018). In our analysis, we make use of the edited responses to these questions.

IV. PREVALENCE AND TRENDS IN CONTINGENT AND ALTERNATIVE ARRANGEMENTS

Although the original impetus for the CWS was to provide information about contingency, much of the previous analysis of CWS data has focused on the prevalence of alternative work arrangements and changes in the prevalence of those arrangements over time. The first question we address is thus how the prevalence of contingent and alternative work arrangements has changed over time.

Overall trends in the prevalence of contingent and alternative work arrangements from the CWS are shown in Figure 4-1 and Figure 4-2. Figure 4-1 displays the trend in contingent employment under each of the three BLS definitions. The narrowest definition includes only wage and salary workers who have been on their job less than a year and expect the job to end within the next twelve months. The second definition adds self-employed individuals meeting the same condition and the third definition, the broadest, further adds any wage and salary worker who believes their job will not last. In all three cases, the share of workers who are contingent has fallen over time. According to the broadest definition, for example, the share of workers who are contingent has fallen from 4.9 percent in 1995 to 3.8 percent in 2017.

Figure 4-1: Trends in Contingent Work, 1995-2017
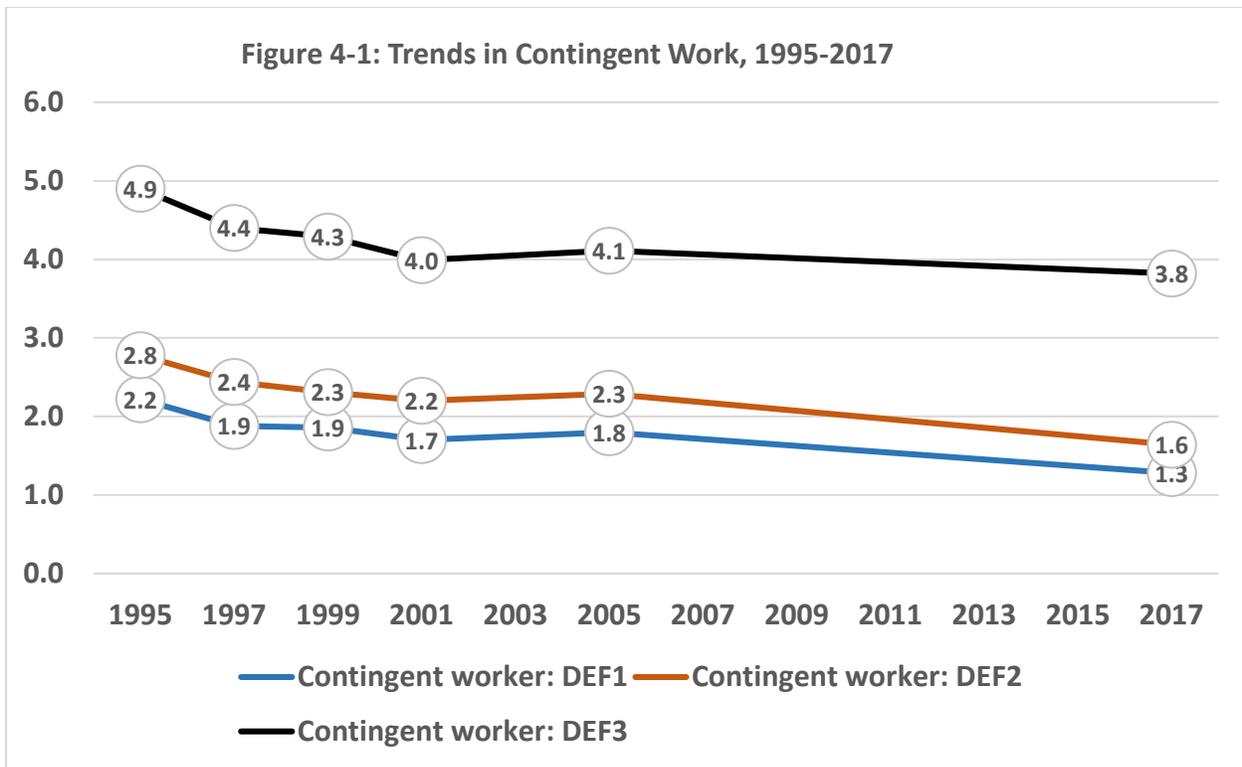
SOURCE: Authors' analysis of CWS data.
NOTE: Figure shows percent of employed persons in contingent jobs by year. Underlying sample size is 57,908 workers in 1995; 51,805 in 1997; 52,393 in 1999; 38,793 in 2001; 44,521 in 2005; and 48,145 in 2017. Tabulations underlying figure are weighted.

Figure 4-2 shows the prevalence of each of the five alternative work arrangements about which the BLS asked explicitly. Of these arrangements, working as an independent contractor is by far the most prevalent. The share of workers categorized as independent contractors rose from 6.4 percent in 2001 to 7.4 percent in 2005. By 2017, however, it had dropped to 6.9 percent, well below the 2005 share and hardly different from the 6.7 percent measurement for 1995. The shares of workers in each of the other main alternative work arrangements—temporary help agency worker, on-call worker, and contract company worker—were much smaller than the share working as independent contractors and have shown no clear aggregate trend over the period for which data are available.

Figure 4-2: Trends in Alternative Work Arrangements, 1995-2017
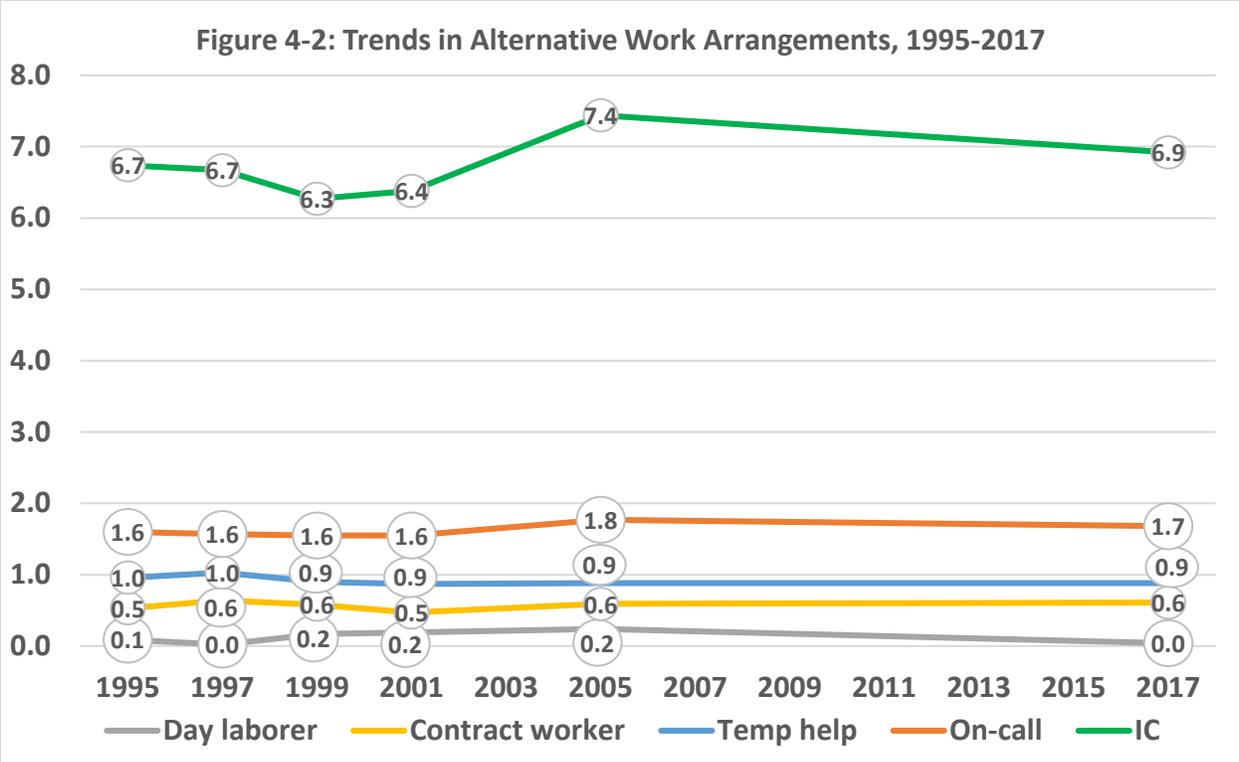
SOURCE: Authors' analysis of CWS data.
NOTE: Figure shows percent of employed persons in alternative work arrangements by year. Underlying sample size is 57,908 workers in 1995; 51,805 in 1997; 52,393 in 1999; 38,793 in 2001; 44,521 in 2005; and 48,145 in 2017. Tabulations underlying figure are weighted.

In part, the lack of evidence of growth in contingent and alternative employment in the CWS data may reflect the fact that the CWS asks only about work on a person's main job. Much of the growth in the prevalence of earnings from non-employee work that is evident in administrative data has occurred among individuals who are supplementing their earnings from a wage and salary job (see, e.g., Abraham et al., 2020; Abraham et al., forthcoming). These and other potential limitations of the CWS are discussed in the concluding section of the paper. In addition to the questions about contingent and alternative work arrangements included on all waves of the CWS to date, the 2017 CWS added questions about electronically mediated work. A substantial number of survey respondents appear to have had trouble understanding the new questions and BLS staff concluded that the raw responses significantly overstated the incidence

of electronically mediated work. The edited responses suggest that about 1.0 percent of all workers engaged in such work during the survey reference week. Both because this information was collected for the first time in 2017 and, more fundamentally, because work mediated through mobile apps and online platforms is a very recent development, there is nothing collected in the earlier waves of the CWS to which this figure can be compared.

V. CONTINGENT AND ALTERNATIVE WORK ARRANGEMENTS AND PLATFORM WORK BY WORKER CHARACTERISTICS

Our second research question concerns how the prevalence of contingent and alternative work varies with worker characteristics. We are especially interested in whether workers at particular points in the life cycle (younger or older workers), workers in groups that historically have been subject to labor market discrimination (women and minorities), or workers who are apt to be otherwise disadvantaged in the labor market (less-educated individuals) are more likely to work in contingent and alternative arrangements. Here, and for the remainder of the paper, we present results for the broadest definition of contingent work—those who report that their main job is not expected to last for economic rather than personal reasons. Both employees and the self-employed may be contingent under this definition. We also present results for six mutually exclusive work arrangements—agency temporary worker, on-call worker, contract company worker, wage and salary independent contractor, self-employed independent contractor, and self-employed but not an independent contractor. As noted above, contract company workers include only those who normally work only for a single client on the client's premises.[8] Finally, we present results for participation in work obtained through platforms that mediate the payments

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[8] Because the number of people reporting that they are day laborers is very small in all waves of the CWS, we do not present results for that arrangement.

for that work, whether that work was part of the respondent's main job or part of a secondary job.

For these analyses, we fit weighted linear probability models of the following form:[9]

$$(1) \quad y_i = \alpha X_i + PT_i\beta + \phi_j + \theta_k + \gamma_w + \lambda_r + \epsilon_i$$

In each model, the dependent variable takes the value of one if the person is in the indicated work arrangement and zero otherwise. We estimate separate regressions for being in a contingent work arrangement and for each of the six mutually exclusive work arrangements. Each model includes a vector of indicator variables that control for demographic characteristics (X_i)—age group (six groups including the omitted category); gender; race (White, Black, Asian, other); ethnicity (Hispanic, non-Hispanic); and educational attainment (less than high school, high school, some college or associate's degree, bachelor's or postgraduate degree)—allowing us to explore the how a person's life-cycle stage or membership in a group that may be subject to labor market discrimination or otherwise disadvantaged in the labor market are associated with participation in different types of work. Explanatory variables also include a control for part-time employment (PT_i) and vectors of indicator variables that control for occupation (ϕ_j, 21 categories); industry (θ_k, 13 categories); CWS wave (γ_w); and region of the country (λ_r, four categories). Occupation, industry, and part-time status all have been found in past research to be associated with being contingent or in certain alternative arrangements (see, e.g., Polivka, 1996b; Cohany, 1996). Region and survey wave indicator variables are included to allow for the possibility that work arrangements may vary over time or across areas.

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[9] Here, and throughout the report, we use linear probability models to estimate equations where the dependent variable is binary. Linear probability models have the desirable property that their coefficient estimates are marginal effects estimates. Linear probability models generally yield estimates of marginal effects similar to the average marginal effects generated by logit and probit models (Angrist and Pischke, 2009). We have verified that estimating logit and probit models yields essentially equivalent results as those reported in this paper. To account for heteroskedasticity in the error term of the linear probability models, we estimate robust standard errors.

We summarize results from these models in Figures 5-1 through 5-5 for age, gender, race, ethnicity, and education. To facilitate comparisons across work arrangements and for ease of interpretation, instead of presenting coefficient estimates, we use the model coefficients to calculate the probability that individuals of a particular group are in each of the six alternative work arrangements, and, for 2017, have participated in platform work. Unlike tabulations showing the share of workers belonging to a particular group who are in each of the work arrangements, the conditional probabilities reported in Figures 5-1 through 5-5 hold other observable factors constant.[10]

The conditional probabilities are computed by calculating, for each sample member, the value of the outcome variable that would have been predicted had the sample member been in a given age group, of a given gender, of a given race, of a given ethnicity or in a given educational attainment group, but in each case with the person's actual values for all of the other explanatory variables included in the model.[11] The probabilities for the entire population are taken as the weighted averages of the individual probabilities calculated in this fashion. In this way, the predicted probabilities are computed for a population that varies only on the characteristic of interest and that is on all other characteristics representative of the U.S. population.[12]

As shown in Figure 5-1, most work arrangements display strong age patterns, though the age gradient varies across the different arrangements. The probability of being in contingent work falls with age until age 65, the traditional retirement age, when it increases somewhat.

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[10]For purposes of comparison with Figures 5-1 through 5-5, Appendix Table A displays tabulations of the weighted shares of workers in contingent work, in each of six mutually exclusive alternative work arrangements, and in regular wage and salary jobs by demographic group, part and full-time status, occupation, and industry.

[11] For example, the estimated probability of a given outcome for those who are age 16-24 is calculated by setting the value of that age dummy to one and all of the other age dummies to zero; calculating the probability for each sample member assuming they were age 16-24 but with their actual other characteristics; and then computing the weighted average of the estimated probabilities.

[12]We used the margins command in Stata to compute these probabilities.

Figure 5-1: Probability of Being in a Contingent or Alternative Work Arrangement or Performing Platform Work, by Age

Legend: 16-24, 25-34, 35-44, 45-54, 55-64, 65+
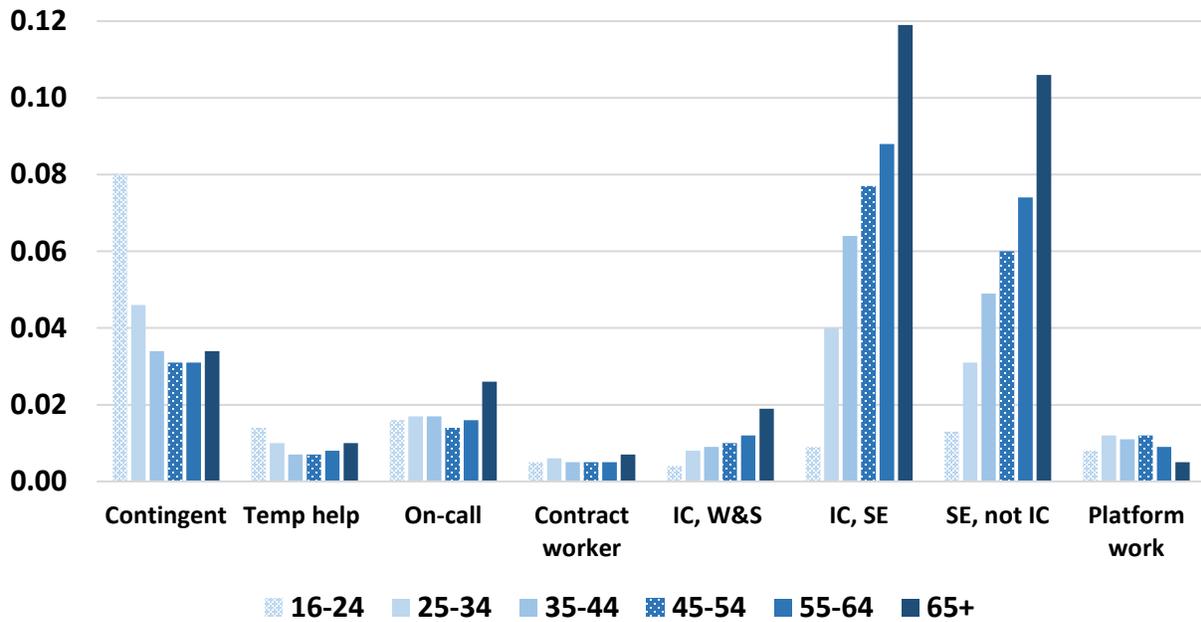
SOURCE: Authors' analysis of CWS data.
NOTES: See Figure 5.5.

Figure 5-2: Probability of Being in a Contingent or Alternative Work Arrangement or Performing Platform Work, by Gender

Legend: Male, Female
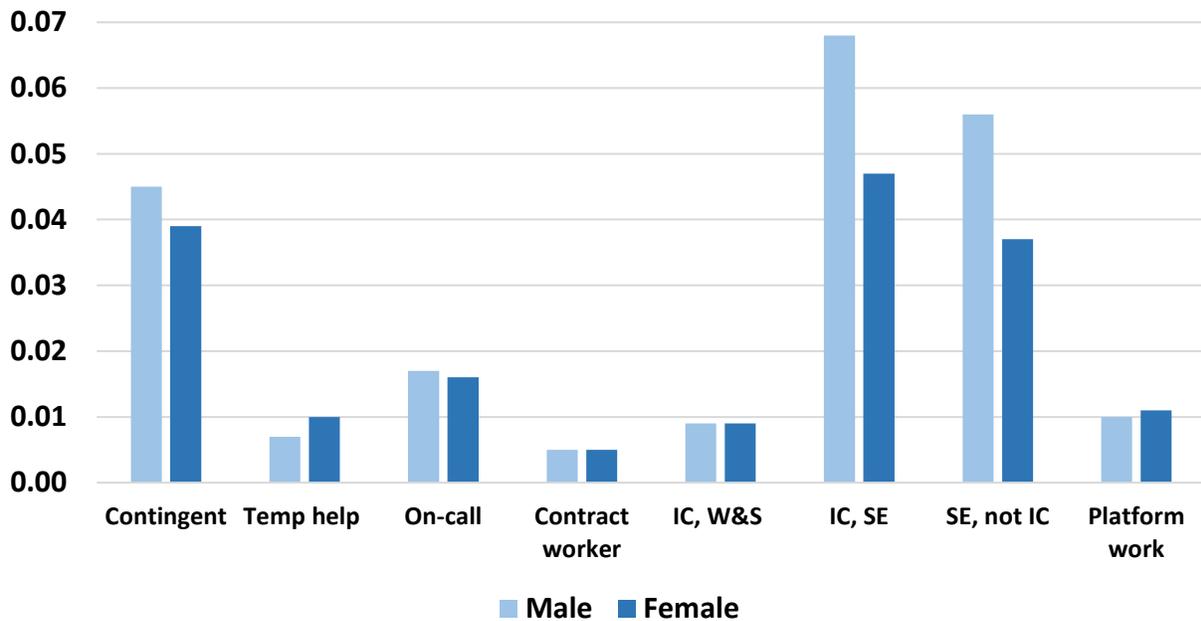
SOURCE: Authors' analysis of CWS data.
NOTES: See Figure 5.5.

Figure 5-3: Probability of Being in a Contingent or Alternative Work Arrangement or Performing Platform Work, by Race
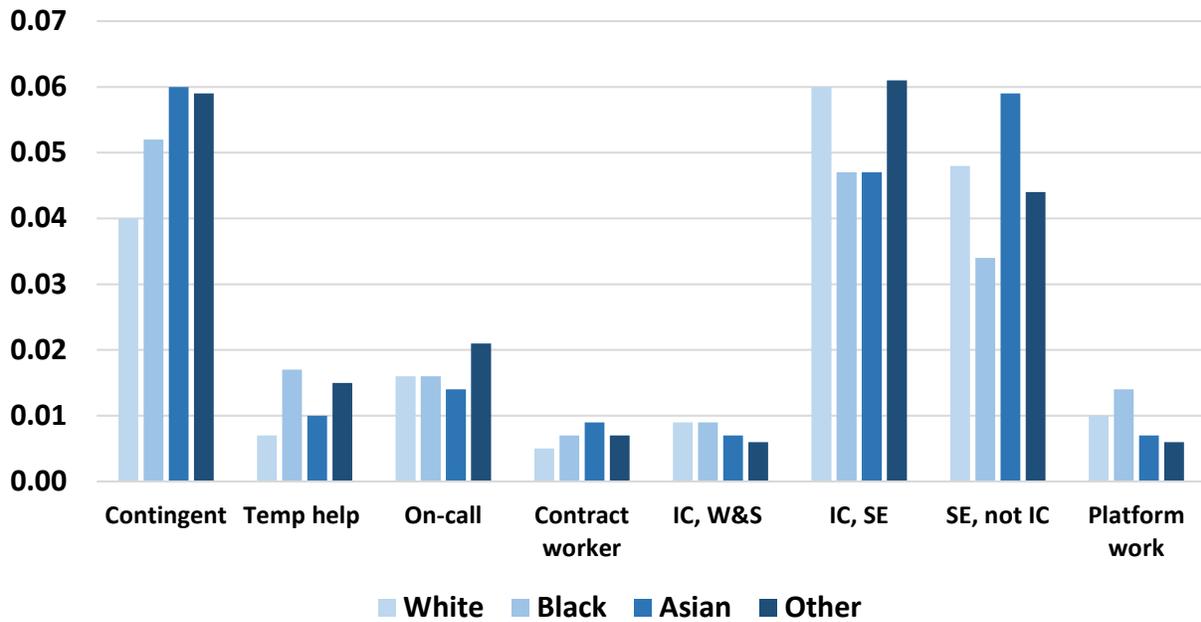
SOURCE: Authors' analysis of CWS data.
NOTES: See Figure 5.5.

Figure 5-4: Probability of Being in a Contingent or Alternative Work Arrangement or Performing Platform Work, by Ethnicity
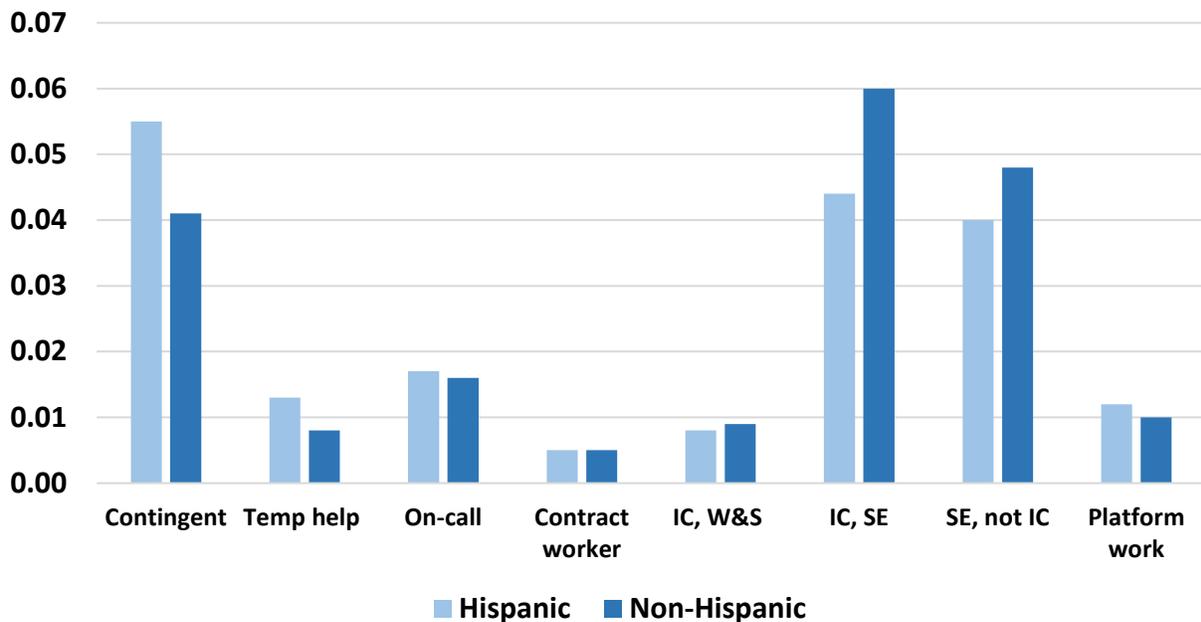
SOURCE: Authors' analysis of CWS data.
NOTES: See Figure 5.5.

Figure 5-5: Probability of Being in a Contingent or Alternative Work Arrangement or Performing Platform Work, by Education
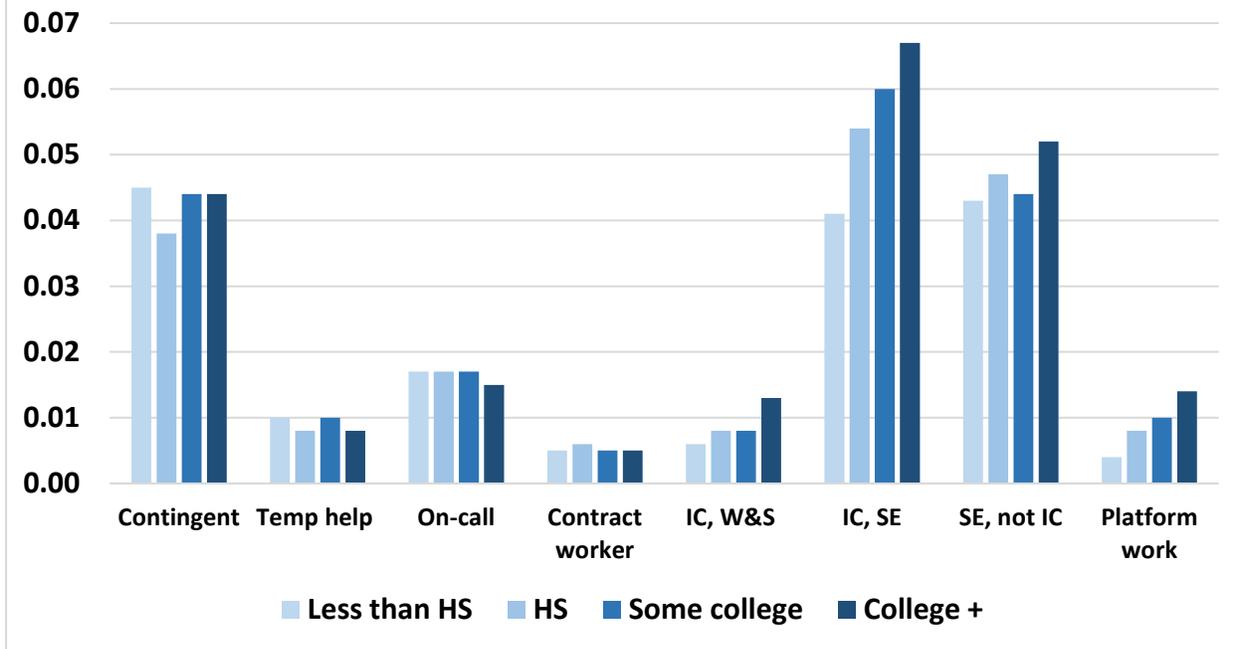
SOURCE: Authors' analysis of CWS data.
NOTES: Figures show conditional probabilities of being in a contingent or alternative work arrangement on the main job or having done platform work, estimated based on coefficients from weighted linear probability regressions. Regressions for contingent and alternative work arrangements fit using pooled 1995, 1997, 1999, 2001, 2005, and 2017 CWS data. Regression for platform work fit using 2017 CWS data. All models include dummies for age group, gender, race, ethnicity, education, part-time status, occupation, industry, and region as explanatory variables; all except model for platform work include survey wave dummies. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All estimated probabilities are weighted. Probabilities on a scale from zero to one shown on vertical axis. N=293,565 for contingent and alternative work arrangement models; N=48,145 for platform work model.

Temporary help employment is most common among younger workers and also somewhat

elevated among those age 65 plus, while on-call work is most common among those 65 and

older. The prevalence of older workers in these arrangements, particularly on-call work, is

consistent with their use during the transition to retirement. In contrast, conditional on working,

both types of independent contractor arrangement and regular self-employment increase strongly

with age. The probability of being a self-employed independent contractor rises from 0.009 (0.9

percent) between ages 16–24 to 0.119 (11.9 percent) among those age 65 plus, and the

probability of other self-employment increases from 0.013 (1.3 percent) to 0.106 (10.6 percent) over the same age span.[13] Platform work is less common among those age 65 and older.

Men are somewhat more likely than women to be in a contingent arrangement and considerably more likely to be in self-employment, either as an independent contractor or in other self-employment (Figure 5-2). As can be seen in Figures 5-3 and 5-4, minorities and Hispanics are considerably more likely to be in contingent and temporary help work arrangements, and somewhat more likely to be in contract company work arrangements, relative to Whites and non-Hispanics. For example, the probability of being in a temporary help job is 0.7 percent for Whites, but 1.7 percent for Blacks; it is 0.8 percent for non-Hispanics but 1.3 percent for Hispanics. While the probability of being a wage and salary independent contractor varies little by race, Blacks and Asians are far less likely to be self-employed independent contractors than Whites. Asians have the highest prevalence of non-independent-contractor self-employment (e.g., operating a traditional business), followed by Whites; Blacks are the least likely to be in non-independent contractor self-employment. Hispanics are less likely than non-Hispanics to be in an independent contractor or self-employment arrangement.

Figure 5-5 displays the probabilities of being in contingent and alternative work arrangements by educational attainment. Interestingly, there is no strong relationship between educational attainment and being in a contingent, temporary help, on-call, contract company or other self-employment arrangement. In contrast, the probability of being in either type of independent contractor arrangement rises uniformly with education. For example, the probability of being a self-employed independent contractor rises from 4.1 percent among those with less than a high school education to 6.7 percent among those with a post-graduate degree. Platform

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[13] A probability of 0.xyz can be expressed equivalently as xy.z percent. From this point forward in the text, we adopt the latter language for talking about the reported findings.

work also is significantly more prevalent among those with higher levels of educational attainment.

These figures overall show that, while it is common to lump various contingent and alternative work arrangements under the rubric of "nonstandard," there is considerable heterogeneity in the demographic composition of workers in the various arrangements. For example, while minorities, Hispanics, youth and the less-educated are disproportionately represented in certain arrangements—most notably contingent jobs and temporary help work— the more-educated, Whites, and older workers are disproportionately in independent contractor arrangements.

VI. ALTERNATIVE WORK ARRANGEMENTS AND JOB QUALITY

The CWS was motivated in large part by concern that nonstandard work arrangements were growing and that the quality of these jobs was poor relative to the standard wage and salary job. We ask how job quality varies across the various work arrangements that are included in the broader category of nonstandard work. More specifically, in this section we review the evidence from the six waves of the CWS on job quality as measured across several dimensions— compensation (wages and benefits), perceived job stability (contingency), and job satisfaction (whether individuals in these alternative arrangements would prefer to be in a more standard work arrangement). Because demographic and other job characteristics also may be associated with these measures of job quality, in our analysis we hold these characteristics constant so as to focus more cleanly on the association between work arrangements and job quality. As the process whereby workers end up in different types of arrangements is not random, however, the evidence on job quality we present should be viewed as descriptive rather than causal.

Throughout this section, we use the following model (or a slight variant of the model) to provide descriptive evidence on the association between work arrangement and various measures of job quality:

(2) $\quad y_i = \alpha_1 WA_i + \alpha_2 X_i + PT_i \beta + \phi_j + \theta_k + \gamma_w + \lambda_r + \epsilon_i$

The dependent variable is an indicator of job quality. The key explanatory variables are a set of mutually exclusive and exhaustive indicators for work arrangement (WA) held by individual i (temporary agency worker, on-call worker, day laborer, contract company worker, wage and salary independent contractor, self-employed independent contractor, non-independent contractor self-employed, with wage and salary workers not in an alternative arrangement being the omitted category). The other explanatory variables control for demographic characteristics, part-time status, occupation, industry, CWS wave, and region, and are the same as those included in Equation (1). We pool data for all six waves of the CWS. The model is estimated as a weighted linear regression or as a weighted linear probability model depending on whether the dependent variable is a continuous or indicator variable.

Weekly Earnings

We begin by reviewing the evidence on the association between work arrangements and compensation—earnings and key fringe benefits, specifically health insurance and participation in a retirement plan. The dependent variable in the earnings model is the natural logarithm of weekly earnings deflated by the CPI-U. As noted above, earnings information is available for individuals in contingent or alternative work arrangements as well as for selected workers holding regular wage and salary jobs.

Table 6-1 shows the estimated coefficients from this model on the indicator variables for the individual's work arrangement. The estimated model coefficients thus tell us whether those

in specific alternative work arrangements have higher or lower earnings than workers with the same observable demographic characteristics and job characteristics who hold a standard wage and salary job. Because the dependent variable is the natural logarithm of earnings, the coefficient estimates approximate the percent differences between the earnings of workers in alternative arrangements compared to those in the standard wage and salary arrangement.

As the Table 6-1 results make clear, there is considerable heterogeneity in the earnings of individuals across alternative work arrangements. In the pooled sample, the weekly earnings of those in temporary help, on-call, and day laborer positions average 13 to 17 percent less than the

Table 6-1: Weekly Earnings, by Work Arrangement

	ln(weekly earnings) difference compared to standard wage and salary worker
Temp help agency	−0.129***
	(0.013)
On-call	−0.148***
	(0.010)
Day laborer	−0.165***
	(0.033)
Contract worker	0.084***
	(0.016)
IC, wage and salary	0.023
	(0.013)
IC, self-employed	0.033***
	(0.006)
Self-employed, not IC	0.006
	(0.008)
Regular W&S (omitted group)	—
R-squared	0.505
N	103,517

SOURCE: Authors' analysis of CWS data.
NOTES: Figures are coefficient estimates from weighted linear regressions fit using pooled 1995, 1997, 1999, 2001, 2005, and 2017 CWS data. All models include dummies for age group, gender, race, ethnicity, education, part-time status, occupation, industry, region, and survey wave. Dependent variable is logarithm of real weekly earnings as deflated by the CPI-U. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001

weekly earnings of those in standard wage and salary positions (the omitted work arrangement). In contrast, contract workers and independent contractors who report being self-employed earn on average 8 percent and 3 percent more, respectively, than regular wage and salary workers. The weekly earnings of wage and salary independent contractors and other self-employed workers are not significantly different from the earnings of those in standard wage and salary positions.

Health Insurance

Next, we examine the association between work arrangement and health insurance. Here, the dependent variables in Equation (2) are indicator variables for three different health insurance coverage outcomes—has health insurance coverage from any source; for the sample of employees, the employer offers health insurance; and for the sample of employees, the employer offers and pays for at least some of the employee's health insurance. We estimate these equations using weighted linear probability models and pooling data for all six CWS waves.

The three columns of Table 6-2 report predicted probabilities of having the indicated health insurance outcome for each work arrangement and wave. As with the results reported in Figures 5-1 to 5-5, these are conditional probabilities that control for other observable factors. The first column, estimated for a sample that includes all workers, reports the probability that workers in different work arrangements or in different years have health insurance from any source. Relative to standard wage and salary workers, workers in all groups, except for contract workers, are significantly less likely to have health insurance. As shown in columns (2) and (3), estimated for the sample of wage and salary workers, employees in all of the alternative work arrangements are significantly less likely to work for an employer who offers health insurance and also are significantly less likely to work for an employer who also pays some or all of the

Table 6-2: Health Insurance Coverage, by Work Arrangement

	Any health insurance (1)	Employer offers health insurance (2)	Employer pays for health insurance (3)
Overall mean of dependent variable	0.843	0.601	0.581
Temp help agency	0.525*** (0.012)	0.131*** (0.008)	0.121*** (0.008)
On-call	0.763*** (0.007)	0.426*** (0.007)	0.406*** (0.007)
Day laborer	0.590*** (0.029)	0.411*** (0.022)	0.398*** (0.022)
Contract worker	0.849*** (0.011)	0.497*** (0.015)	0.472*** (0.015)
IC, wage and salary	0.735*** (0.010)	0.318*** (0.010)	0.291*** (0.009)
IC, self-employed	0.761*** (0.004)	--	--
Self-employed, not IC	0.792*** (0.004)	--	--
Regular W&S	0.858*** (0.001)	0.614*** (0.001)	0.593*** (0.001)
1995	0.835*** (0.002)	0.609*** (0.002)	0.589*** (0.002)
1997	0.837*** (0.002)	0.609*** (0.002)	0.588*** (0.002)
1999	0.840*** (0.002)	0.611*** (0.002)	0.589*** (0.002)
2001	0.846*** (0.002)	0.615*** (0.003)	0.596*** (0.003)
2005	0.824*** (0.002)	0.601*** (0.003)	0.581*** (0.003)
2017	0.872*** (0.002)	0.568*** (0.002)	0.546*** (0.002)
N	268,265	237,012	237,012

SOURCE: Authors' analysis of CWS data.
NOTES: Figures are predicted probabilities of having the indicated type of health insurance from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data. All models include dummies for age group, gender, race, ethnicity, education, part-time status, occupation, industry, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. $*=p<0.05$, $**=p<0.01$, $***=p<0.001$.

cost of their health insurance.[14] These probabilities are especially low for employees of temporary help agencies. Among temporary agency workers, the probability of having health insurance from any source is only a little over 50 percent; the probability of the temporary agency offering health insurance is just 13 percent and the probability that the agency pays at least some of the premium is just 12 percent.

The rows at the bottom of Table 6-2 show the estimated probability by year that a worker has health insurance from any source and, for employees, the probability that the worker's employer offers health insurance and the probability that, in addition to offering health insurance, the employer pays at least part of the premium. Holding other observable factors constant, consistent with the expansion of health insurance coverage through the Affordable Care Act, the probability of having health insurance from any source is significantly higher in 2017 relative to earlier years. Although not shown, the probability of having health insurance among the subset of wage and salary workers in 2017 is higher as well. The probability that an employee's employer offers health insurance and covers at least part of the insurance premium, however, is significantly lower in 2017 than in earlier years. This finding indicates that, despite the ACA's mandate that employers with more than 50 full-time equivalent employees offer affordable health insurance to workers averaging 30 or more hours per week, the expansion of health insurance coverage by 2017 did not come through expanded coverage in the workplace.

Retirement Benefits

We also examine the association between work arrangement and retirement benefits, by estimating versions of Equation (2) in which the dependent variable is an indicator for having a

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[14] Here and below, statements about the significance of differences across groups in their predicted probabilities are based on the underlying regression models that generated these predicted probabilities.

retirement plan and, among employees, of having a retirement plan through one's employer.

Table 6-3 shows the conditional probability by work arrangement of these two outcomes, which are generated using the regression model estimates in the same fashion as for the health insurance probabilities just discussed. Compared to wage and salary workers who are not in an alternative arrangement, holding constant demographic and other job characteristics, workers in all other arrangements are significantly less likely to have a retirement plan and, among employees, significantly less likely to have a plan through their employer. As with health

Table 6-3: Retirement Plan Coverage, by Work Arrangement

	Has retirement plan (1)	Has retirement plan through employer (2)
Overall mean of dependent variable	0.577	0.525
Temp help agency	0.249***	0.141***
	(0.009)	(0.007)
On-call	0.511***	0.408***
	(0.007)	(0.007)
Day laborer	0.459***	0.393***
	(0.019)	(0.018)
Contract worker	0.501***	0.407***
	(0.014)	(0.014)
IC, wage and salary	0.434***	0.237***
	(0.011)	(0.009)
IC, self-employed	0.419***	--
	(0.004)	
Self-employed, not IC	0.432***	--
	(0.005)	
Regular W&S	0.603***	0.535***
	(0.001)	(0.001)
N	268,265	237,012

SOURCE: Authors' analysis of CWS data.
NOTES: Figures are predicted probabilities of having the indicated type of retirement plan from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data. All models include dummies for age group, gender, race, ethnicity, education, part-time status, occupation, industry, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001

insurance, the likelihood of having a retirement plan is particularly low among temporary agency workers. Among standard wage and salary workers, the conditional probability of having a retirement plan is about 60 percent and the conditional probability of having an employer-provided retirement plan is 53 percent. The corresponding figures for temporary help workers are just 25 percent and 14 percent.

Work Arrangements and Contingency

While some people look for contingent or temporary work, contingency can be an indicator of job instability and as such a negative indicator of job quality. To provide descriptive evidence on the association between work arrangement and contingency, we again use Equation (2) with the dependent variable specified this time as an indicator for whether a worker's job is contingent (dependent variable one if yes, else zero). Figure 6-1 shows the predicted probabilities of holding a contingent job by work arrangement from this model, holding other observables constant.

The conditional probability of being in a contingent arrangement is low—between 3 and 4 percent—for workers in self-employment and independent contractor arrangements. These workers are no more likely than regular wage and salary workers to be contingent, and self-employed independent contractors are significantly less likely to be contingent. In contrast, relative to regular wage and salary workers, those in other alternative arrangements have a significantly higher probability of being contingent. Temporary help and day laborer arrangements are intrinsically temporary, and it is not surprising that the probability of being contingent is high among workers in these arrangements—55 percent and 83 percent, respectively. The probability, however, also is quite high among on-call workers (24 percent) and contract workers (16 percent).

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Figure 6-1: Probability of Contingent Job, by Work Arrangement
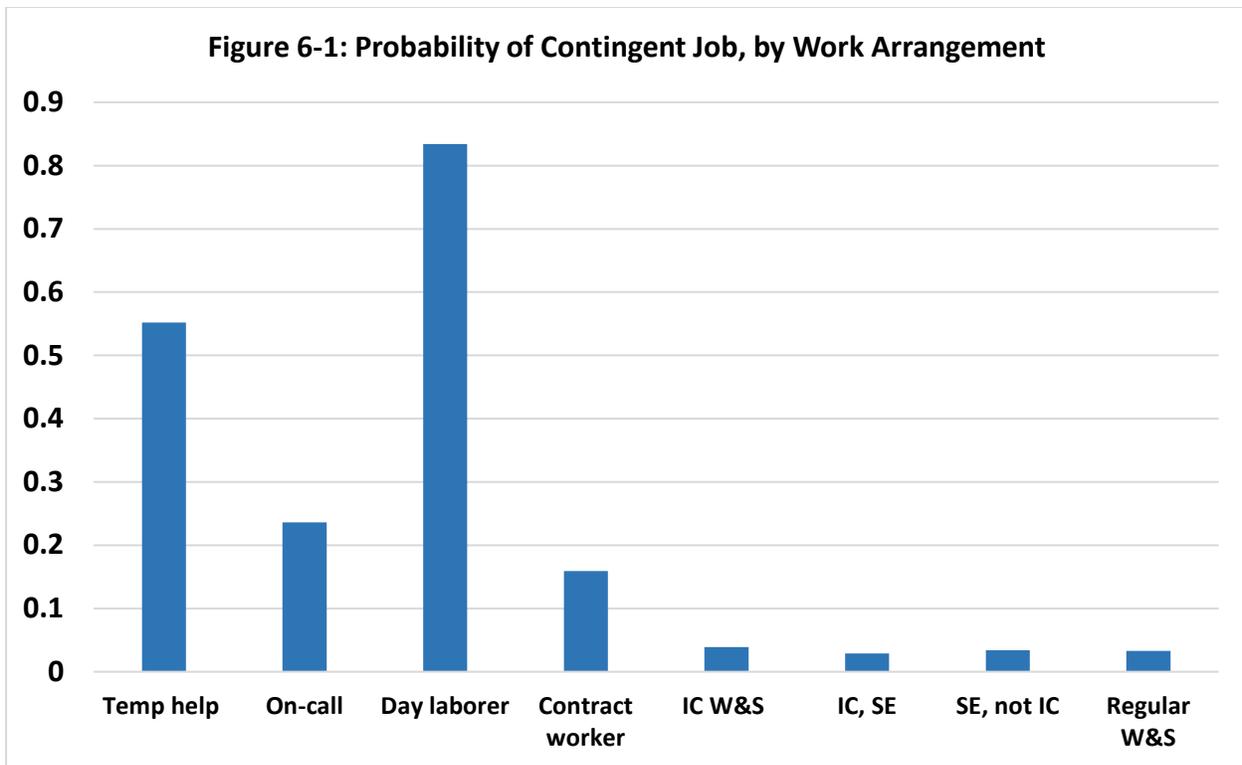
SOURCE: Authors' analysis of CWS data.

NOTES: Figure shows predicted probabilities of being in a contingent job from a weighted linear probability regression fit using pooled 1995, 1997, 1999, 2001, 2005, and 2017 CWS data. In addition to work arrangement dummies, model include dummies for gender, age group, race, ethnicity, education, part-time status, occupation, industry, region, and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Probabilities on a scale from zero to one shown on vertical axis. N=293,656.

Work Arrangements and Preferences

Whether being in a contingent or alternative work arrangement is problematic depends largely on the worker's preferences. Some have reasons to work on a temporary, on-call or contract basis and may be willing to sacrifice wages and benefits in return for the flexibility that such work arrangements may provide. To ascertain people's satisfaction with contingent, temporary help, on-call, and independent contractor and self-employment arrangements, the survey queried individuals about their preference for a different type of work. As previously discussed, the questions were worded differently depending on the work arrangement. For contingent workers, the question asks whether the person would have preferred a permanent job;

for temporary agency workers, whether the person would have preferred to work for a different type of employer; for on-call workers, whether they would have preferred a job with regularly scheduled hours; and for independent contractors and other self-employed people, whether the person would have preferred working for someone else.

The CWS contains no measure of job preference for those in a standard wage and salary job against which these measures of job satisfaction can be gauged. Nonetheless, as shown below, the data show considerable heterogeneity across the different contingent and alternative work arrangements in people's preference for being a different arrangement.

We use these questions about workers' preferences for their type of work arrangement as dummy dependent variables in weighted linear probability models to ascertain how, given that a worker is in a particular arrangement, preferences for that arrangement vary by demographic characteristic. The dummy dependent variable in the model equals one if the individual would prefer an arrangement different from the arrangement she holds (i.e., it measures dissatisfaction with the arrangement). Because questions on job preference were asked only of individuals in some arrangements and were specific to each arrangement, the sample for each equation is limited to individuals in a particular arrangement. Thus, we drop the work arrangement indicator in Equation (2), and estimate separate linear probability models for each of the six work arrangements for which a job preference question was asked--contingent, temporary help agency, on-call, wage and salary independent contractor, self-employed independent contractor, and non-independent contractor self-employed.[15] The right-hand side variables—controls for demographic characteristics, part-time work, occupation, industry, CWS wave, and region—are

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[15] The wording for the job preference question in the CWS was the same for those identifying as either type of independent contractor and those in a non-independent contractor self-employment arrangement. We estimate separate regressions for each of these arrangements to facilitate comparisons across work arrangement in job preference by demographic characteristic.

otherwise the same as those included in Equation (2) (and the specification is identical to that of Equation (1)).

Table 6-4 displays the predicted probabilities of dissatisfaction with each of the six work arrangements by demographic characteristic. As detailed above, the conditional probabilities are derived from the model estimates and hold constant other observable factors. For reference, the first row of Table 6-4 shows the (weighted) mean of the dependent variable, which is the share of workers in each arrangement who would prefer a different arrangement, based on data pooled across the six CWS waves. Nearly 60 percent of those whose jobs are contingent would prefer a permanent job and a similar percentage of those working for a temporary agency would prefer a different type of employer. Nearly half of on-call workers would prefer a job with regularly scheduled hours. In contrast, those in independent contractor and self-employment arrangements are generally happy with their arrangement. Only 7 to 8 percent of self-employed independent contractors and other self-employed people say they would prefer to work for someone else. Notably, among independent contractors coded as wage and salary workers, the share who report wanting to work for someone is considerably higher—nearly 18 percent or double the dissatisfaction rate among self-employed independent contractors. Based on the findings in other research (Abraham, Hershbein, and Houseman, 2019, in press), it is likely that many of these individuals were miscoded as wage and salary workers in the CPS and are instead working on a contract basis for one or more organizations.

Among those working in a specific arrangement, there also is considerable heterogeneity across demographic groups in satisfaction with the arrangement. For all of the work arrangements with a job preference measure, dissatisfaction generally declines with age. For example, among those in temporary help jobs, two-thirds of those age 16–24 would prefer a

Table 6-4: Probability of Wanting a Different Type of Work, by Work Arrangement

	Contingent (1)	Temp help agency (2)	On-call (3)	IC, wage and salary (4)	IC, self-employed (5)	Self-employed, not IC (6)
Overall mean of dependent variable	0.589	0.564	0.482	0.177	0.081	0.073
Age 16–24	0.523***	0.627***	0.555***	0.299***	0.134***	0.226***
	(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(0.03)
Age 25–34	0.685***	0.573***	0.561***	0.222***	0.093***	0.085***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Age 35–44	0.675***	0.603***	0.532***	0.191***	0.087***	0.072***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Age 45–54	0.644***	0.556***	0.476***	0.177***	0.083***	0.066***
	(0.01)	(0.03)	(0.02)	(0.02)	(0.01)	(0.00)
Age 55–64	0.459***	0.392***	0.340***	0.117***	0.071***	0.068***
	(0.02)	(0.04)	(0.02)	(0.02)	(0.01)	(0.01)
Age 65 plus	0.230***	0.325***	0.145***	0.043*	0.035***	0.044***
	(0.02)	(0.06)	(0.02)	(0.02)	(0.01)	(0.01)
Male	0.589***	0.598***	0.492***	0.174***	0.084***	0.069***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.00)	(0.00)
Female	0.589***	0.536***	0.473***	0.180***	0.075***	0.079***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
White	0.574***	0.558***	0.462***	0.175***	0.080***	0.069***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Black	0.664***	0.593***	0.587***	0.196***	0.100***	0.103***
	(0.02)	(0.03)	(0.03)	(0.04)	(0.01)	(0.02)
Asian	0.616***	0.489***	0.585***	0.146***	0.082***	0.109***
	(0.02)	(0.06)	(0.05)	(0.04)	(0.01)	(0.01)
Other race	0.651***	0.611***	0.631***	0.303**	0.112***	0.088**
	(0.03)	(0.08)	(0.05)	(0.11)	(0.03)	(0.03)
Hispanic	0.659***	0.564***	0.570***	0.208***	0.124***	0.112***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.01)	(0.01)
Non-Hispanic	0.576***	0.564***	0.469***	0.173***	0.078***	0.070***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Less than high school	0.590***	0.563***	0.449***	0.291***	0.114***	0.104***
	(0.01)	(0.03)	(0.02)	(0.04)	(0.01)	(0.01)
High school	0.616***	0.571***	0.496***	0.162***	0.079***	0.079***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Some college	0.551***	0.552***	0.470***	0.144***	0.083***	0.067***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
College plus	0.607***	0.575***	0.504***	0.180***	0.074***	0.064***
	(0.01)	(0.03)	(0.02)	(0.02)	(0.00)	(0.00)
N	11,024	2,253	4,782	2,374	17,649	15,059

SOURCE: Authors' analysis of CWS data.
NOTES: Figures are predicted probabilities of wanting a different work arrangement from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data. Sample in each column is workers with given work arrangement. In addition to listed variables, all models include dummies for part-time status, occupation, industry, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001.

permanent job, compared to one-third of those age 65 and older. Among wage and salary independent contractors, about 30 percent of those age 16–24 and 22 percent of those age 25–34 would prefer to work for someone else, but that figure falls to just 4.3 percent for those age 65 and older.

Large differences in work arrangement preferences also exist by race and ethnicity. Relative to Whites, Blacks are significantly more likely to want a permanent job if they are contingent and to want a job with regularly scheduled hours if they work on an on-call basis. For all of the arrangements except for temporary help work, Hispanics are less satisfied with their work arrangement than non-Hispanics in the same type of arrangement.[16] While differences between Hispanics and non-Hispanics are especially large for those in contingent and on-call work, Hispanics in other self-employment arrangements are more likely than non-Hispanics to report that they would prefer to work for someone else (11.2 versus 7.0 percent) and the same is true of Hispanics who are self-employed independent contractors (12.4 versus 7.8 percent).

There also are significant differences by educational attainment in job preferences for the three types of independent contractor and self-employment arrangements. While a majority of workers in these arrangements at all education levels prefer them, the probability of preferring to work for someone else falls with educational attainment. For example, while 11.4 percent of self-employed independent contractors and 29.1 percent of wage and salary independent contractors (among those with less than a high school education) would prefer to work for an employer, the corresponding figures are just 7.4 and 18.0 percent for those with post-graduate degrees.

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[16] These differences are statistically significant for all but wage and salary independent contractors.

VII. TRENDS IN THE DEMOGRAPHIC COMPOSITION OF WORKERS IN ALTERNATIVE ARRANGEMENTS

Prior to the conduct of the 2017 CWS, widespread media reports proclaimed the growth of the "gig" economy in which workers, no longer company employees, pieced together a series of short-term tasks to earn a living as independent contractors or freelance workers. On-demand platform work, which has been rapidly expanding, is one example of gig work. These reports, along with some research evidence suggesting independent contracting, on-demand work, and other alternative work arrangements had grown sharply since the 2005 CWS, helped motivate the funding for the 2017 CWS (Katz and Krueger, 2016). Yet, as shown in Figures 4-1 and 4-2, the CWS showed no growth in any of the contingent and alternative work measures between 2005 and 2017, and even registered a small decline in independent contracting.

In this section, we ask whether there are particular groups of workers for whom the prevalence of alternative work arrangements, especially independent contracting, has increased or decreased. Table 7-1 shows the share of workers in independent contract arrangements combined (i.e., independent contractors classified either as self-employed or as wage and salary workers) by demographic characteristics and for selected occupations and industries for each CWS wave. All shares are weighted to be representative of the population in the indicated year.

These figures show that the aggregate data mask some countervailing trends. The share of women and workers in certain groups who are independent contractors rose on net between 1995 and 2017 period, though it fell for men, women, and all age groups between 2005 and 2017. Both over the entire 1995–2017 time period and between 2005 and 2017, however, there was sizable growth in independent contracting for Blacks, Hispanics, and high-school dropouts. Growth in independent contracting also has been substantial among part-time workers. Thus, the

Table 7-1: Percent of Employed Who Are Independent Contractors, by Year and Selected Characteristics

	Year					
	1995	1997	1999	2001	2005	2017
Total	6.74	6.67	6.27	6.38	7.44	6.92
Age 16–24	1.78	1.51	1.71	1.71	2.39	1.96
Age 25–34	5.10	4.89	4.78	4.37	5.05	4.69
Age 35–44	7.50	7.46	6.84	6.77	7.99	6.74
Age 45–54	8.75	8.56	7.74	8.05	8.50	7.82
Age 55–64	9.95	9.75	9.28	9.72	10.80	9.25
Age 65 plus	15.74	16.33	14.83	16.86	18.30	16.23
Female	4.77	4.80	4.54	4.82	5.61	5.29
Male	8.44	8.29	7.79	7.76	9.05	8.36
White	7.29	7.11	6.74	6.71	7.97	7.44
Black	3.17	3.33	3.25	3.95	4.03	4.67
Asian	5.07	6.25	5.30	6.02	6.24	5.10
Other race	3.91	6.73	3.69	7.42	6.99	6.74
Hispanic	4.13	5.10	3.79	4.21	5.27	6.14
Non-Hispanic	6.99	6.84	6.55	6.64	7.77	7.08
Less than high school	5.70	5.04	4.39	5.18	5.47	7.60
High school	6.00	6.18	5.96	6.22	6.95	6.55
Some college	6.21	6.20	6.01	5.79	7.41	6.49
College plus	8.76	8.54	7.71	7.63	8.69	7.35
Usually part time	9.09	9.47	8.75	9.05	10.58	11.20
Usually full time	6.15	5.98	5.69	5.77	6.71	5.90
Selected occupations experiencing declines in independent contracting						
Legal occupations	15.45	14.97	12.73	11.44	10.48	8.28
Construction, extraction	20.26	18.17	17.56	17.59	18.91	16.13
Sales	11.03	9.88	8.77	8.47	10.56	9.30
Healthcare practitioners	4.00	4.63	4.92	4.45	4.14	2.95
Selected occupations experiencing increases in independent contracting						
Building, grounds, maintenance	11.03	11.13	7.39	10.87	10.63	13.36
Transportation and material moving	4.24	4.89	4.86	4.99	4.63	5.82
Protective service	0.52	1.05	0.67	0.97	0.83	1.50
Selected industries experiencing large changes in independent contracting						
Construction	25.03	22.37	20.28	19.35	22.19	19.53
Transportation, utilities	5.29	5.77	5.38	6.01	5.63	7.77
N	57,908	51,805	52,393	38,793	44,521	48,145

SOURCE: Authors' analysis of CWS data.
NOTES: All tabulations are weighted using CWS weights.

lowest paid groups—minorities, the less-educated, and part-time workers—have experienced

sizable growth.

The lower panels of Table 7-1 show the incidence of independent contracting by CWS

wave for selected occupations and industries. Legal, construction and extraction, sales and

healthcare occupations have experienced the largest declines in independent contracting between 1995 and 2017.

At the same time, building, grounds, and maintenance occupations—which are relatively low-paid—have seen a sharp rise in independent contractor arrangements, while transportation and material moving, and protective service occupations, which also include relatively low-paid workers, have experienced a sizable growth in independent contracting as well. Consistent with these occupational patterns, there has been a large drop in independent contracting in the construction industry and growth in the transportation sector.

As was shown in Table 6-1, independent contracting generally is associated with higher earnings relative to standard wage and salary employment, suggesting that it could be a stepping-stone to better paid jobs for low-wage workers. On the other hand, a body of existing research suggests that contracting out of low-wage work instead can be a mechanism for reducing earnings among affected groups (Dube and Kaplan, 2010; Weil, 2014; Goldschmidt and Schmieder, 2017). While a rigorous examination of this issue is not possible with the cross-sectional CWS data, we can ask whether independent contracting is associated with higher or lower earnings for groups that tend to be lower paid. In Appendix Table B, we report estimates of earnings regressions like those shown in the first column of Table 6-1, but with interactions of independent contractor arrangement with race and ethnicity added in the first column and interactions of independent contractor arrangement with educational attainment added in the second column. The interaction between independent contractor and Black is significantly negative and the coefficient estimates on the independent contractor terms together with the estimate on the interaction indicate that, controlling for observable factors, Blacks in an independent contractor arrangement earn 5 to 6 percent less on average than Blacks in a standard

wage and salary job.[17] The coefficients on the other interaction terms generally are insignificant. The one exception is a large negative coefficient estimate on the interaction between independent contractor and having a college or post-graduate degree. Rates of independent contracting are particularly high among highly educated seniors and this negative coefficient could reflect lower earnings in a bridge-job to retirement (Ramnath, Shoven, and Slavov, 2017; Abraham, Hershbein, and Houseman, 2019, in press).

The overall incidence of other types of alternative work arrangements is considerably lower, and our examination of the incidence of these other work arrangements by demographic group and CWS wave uncovered few trends. One notable exception was the sizable and steady increase in the incidence of temporary agency employment over time in production occupations, in transportation and material moving occupations, and in the manufacturing sector. This trend is consistent with other research that has found a large growth in use of temporary help services in these occupations and industries (Dey, Houseman, and Polivka, 2012, 2017).

VIII. PATHWAYS INTO AND OUT OF CONTINGENT AND ALTERNATIVE WORK ARRANGEMENTS

A different approach to learning about the role that contingent and alternative work arrangements play in individuals' work lives is to look at the pathways they follow into and out of those positions. Are people who have lost their previous job or experienced a spell of unemployment more likely than other workers to hold contingent and alternative jobs? Are job

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[17] The coefficient estimates on the independent contractor variables are 0.033 (for wage and salary independent contractors) and 0.040 (for self-employed independent contractors), while the coefficient estimate on the interaction of being in an independent contractor arrangement and Black is -0.094. Adding these two effects, they indicate that Blacks in independent contractor arrangements earn 5 to 6 percent less than those in standard wage and salary jobs, the omitted category.

losers or the previously unemployed who hold contingent or alternative jobs less likely to be satisfied with them? Are contingent and alternative jobs in fact less stable than other jobs? We turn now to these and related questions.

Information regarding the pathways that people follow into contingent and alternative employment is collected as part of the CWS itself, which asks employed individuals who have been on their current job less than three years what they were doing before that job started. Based on the answers to these questions, we distinguish several pathways into the current job—quit a previous job; lost a previous job or had a temporary job end; had a previous job end in some other way; were looking for work after entering or re-entering the labor force; or were out of the labor force immediately before taking the contingent or alternative job.[18]

To provide evidence on how, controlling for other observable characteristics, a worker's pathway into a new job is associated with being in a contingent or alternative work arrangement, we estimate a variant of earlier equations:

(3) $y_i = \alpha_1 PATH_i + \alpha_2 X_i + \gamma_w + \lambda_r + \epsilon_i$

The dummy dependent variable in the model is being in a contingent or alternative work arrangement; we estimate separate equations for each of eight work arrangements—contingent, temporary agency, on-call, day laborer, contract worker, wage and salary independent contractor, independent contractor self-employed, and non-independent contractor self-employed. All models pool data across CWS waves and are estimated using weighted linear probability models.

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[18] People in the first three categories could have taken the contingent or alternative job immediately after their previous job ended or following a spell of unemployment.

A vector of indicator variables ($PATH_i$) shows individual $i's$ pathway into her current job. We also control for demographic characteristics, CWS wave, and region.[19]

Table 8-1 reports estimates of the predicted probability that currently employed people who followed each of these pathways into employment held the indicated work arrangement. As for previously reported analyses, we report predicted probabilities based on the model estimates rather than the underlying model coefficients, which makes it more straightforward to compare the results across all of the various groups.

Table 8-1: Probability of Contingent or Alternative Status by Pathway Into Current Job Among Individuals in Current Job Less than Three Years

	Contingent (1)	Temp help agency (2)	On-call (3)	Day laborer (4)	Contract worker (5)	IC, wage and salary (6)	IC, Self-employed (7)	Self-employed, not IC (8)
Lost job/temp job ended	0.114*** (0.003)	0.031*** (0.002)	0.031*** (0.002)	0.005*** (0.001)	0.012*** (0.001)	0.009*** (0.001)	0.039*** (0.002)	0.018*** (0.001)
Quit job	0.046*** (0.001)	0.012*** (0.001)	0.016*** (0.001)	0.001*** (0.000)	0.007*** (0.000)	0.007*** (0.000)	0.037*** (0.001)	0.021*** (0.001)
Other prev emp	0.081*** (0.003)	0.015*** (0.001)	0.024*** (0.002)	0.003*** (0.001)	0.007*** (0.001)	0.019*** (0.002)	0.051*** (0.003)	0.035*** (0.002)
Entrant/reentrant	0.089*** (0.003)	0.025*** (0.002)	0.033*** (0.002)	0.005*** (0.001)	0.009*** (0.001)	0.007*** (0.001)	0.020*** (0.001)	0.011*** (0.001)
Out of the labor force	0.108*** (0.002)	0.016*** (0.001)	0.029*** (0.001)	0.003*** (0.000)	0.008*** (0.001)	0.013*** (0.001)	0.043*** (0.001)	0.035*** (0.001)

SOURCE: Authors' analysis of CWS responses.
N=119,725.
NOTES: Figures are predicted probabilities of being in the indicated work arrangement from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data for those in current job less than three years as of date of CWS interview. All models include dummies for gender, age group, race, ethnicity, education, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001.

One consistent pattern in the Table 8-1 estimates is that people who lost a previous job or had a temporary job end are more likely than those who quit a previous job to transition to

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[19] Because our focus is on understanding how prior work and labor force experiences affect the probability of being in a contingent or alternative work arrangement, we do not include measures of other characteristics of the contemporaneous job, such as part-time status, occupation, and industry, as right-hand side variables.

seemingly more precarious jobs—contingent employment or work as a temporary help agency worker, on-call worker, day laborer, or contract company worker. Compared to those who quit a previous job, employed individuals who lost a previous job or whose previous temporary job ended are about two and one-half times as likely to be contingent or work for a temporary agency; twice as likely to be an on-call worker; five times as likely to be a day laborer; and more than one and one-half times as likely to be a contract company worker. Interestingly, people who had been out of the labor force prior to taking their current job also are more likely to be contingent, on-call, or day laborers than people who quit a previous job. In addition, they are more likely to be self-employed but not an independent contractor.

Whereas job losers seem likely to have ended up in the arrangements where they are overrepresented because they lacked good alternatives, workers who had been out of the labor force may have been more likely to take these jobs by choice. We can assess this at least to some extent by looking at their preferences for a different type of arrangement. For six of the eight types of employment shown in Table 8-1, again using data pooled across all six survey waves, we have used the specification in Equation (3) to estimate weighted linear probability models with a binary dependent variable that takes a value of one for those who would prefer a different employment arrangement and zero otherwise.[20] The right-hand-side variables in these models are dummy variables for the various pathways into the current job, along with demographic, region, and wave controls. Table 8-2 reports the predicted probability of preferring a different work arrangement for people who followed each of the different pathways into their current job, holding other observables constant.

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[20] Even in the pooled sample, the number of day laborers is too small to estimate the preference model. Questions about preference for a different arrangement are not asked of people working as contract company workers.

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Table 8-2: Preference for a Different Work Arrangement by Pathway Into Current Job Among Individuals in Current Job Less than Three Years

	Contingent (1)	Temp help agency (2)	On-call (3)	IC, wage and salary (4)	IC, Self-employed (5)	Self-employed, not IC (6)
Lost job/temp job ended	0.676*** (0.012)	0.673*** (0.024)	0.622*** (0.023)	0.343*** (0.046)	0.229*** (0.017)	0.217*** (0.024)
Quit job	0.666*** (0.012)	0.601*** (0.024)	0.553*** (0.020)	0.223*** (0.027)	0.106*** (0.008)	0.110*** (0.011)
Other prev emp	0.610*** (0.020)	0.572*** (0.043)	0.528*** (0.032)	0.232*** (0.037)	0.120*** (0.016)	0.107*** (0.017)
Entrant/reentrant	0.703*** (0.015)	0.653*** (0.030)	0.702*** (0.024)	0.539*** (0.067)	0.235*** (0.044)	0.313*** (0.057)
Out of the labor force	0.436*** (0.011)	0.433*** (0.029)	0.429*** (0.020)	0.170*** (0.024)	0.080*** (0.011)	0.085*** (0.013)
N	8,306	1,942	2,856	1,036	4,656	2,999

SOURCE: Authors' analysis of CWS data.
NOTES: Figures are predicted probabilities of wanting a different work arrangement from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data for those in current job less than three years as of date of CWS interview. All models include dummies for gender, age group, race, ethnicity, education, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=$p<0.05$, **=$p<0.01$, ***=$p<0.001$.

The estimates shown in Table 8-2 make clear that job losers in the precarious arrangements where they are overrepresented are at least as likely as—or even more likely than—those who quit a previous job, to prefer a different type of work. Perhaps more strikingly, those working as independent contractors or in other self-employment are much more likely to say they would prefer to be working for someone else, suggesting that these job losers entered self-employment because they did not have a satisfactory employment alternative. This is very different from the pattern for people who had previously been out of the labor force and now are working in a contingent job or alternative arrangement. In every case, those who had previously been out of the labor force are happier with their current work arrangement even than those in the same type of arrangement who had quit a previous job.

Next, we make use of the limited longitudinal structure of the CPS to offer a different

perspective on the relationship between labor market history and the probability of being in a

contingent or alternative employment arrangement. As described earlier in the paper, we are able

to link previous-month CPS records for somewhat under three-quarters of the CWS sample in

1995, 1997, 1999, and 2017 and for somewhat under two-thirds of the CWS sample in 2001 and

2005. Linking the data in this way allows us to observe individuals' labor force status in the

previous month—unemployed, employed, not in the labor force but want a job, or not in the

labor force and do not want a job. Using this information, we employ a variant of Equation (3),

substituting a vector of indicator variables showing labor force status in the prior month for the

vector of indicator variables showing pathway into the current job (derived from a set of

questions on the CWS):

(4) $\quad y_i = \alpha_1 LFStat_{i,t-1} + \alpha_2 X_i + \gamma_w + \lambda_r + \epsilon_i$

The dummy dependent variable in the model is equal to one if, in the CWS, the individual is in

the specified work arrangement; separate regressions are run for each of eight arrangements. The

key explanatory variables of interest are labor force status indicators for the previous month

($LFStat_{i,t-1}$).

Based on these model estimates, Table 8-3 reports the predicted probabilities by labor

force status in the previous month that the individual is in the indicated work arrangement.

Similar to the results reported in Table 8-1, workers who were unemployed in the previous

month are much more likely than workers who had been employed in the previous month to be

in a contingent job. Workers unemployed in the previous month are also much more likely than

those who had been employed to be a temporary agency employee, on-call worker, day laborer,

contract company worker, or wage-and-salary independent contractor. The pattern for workers

Table 8-3: Probability of Contingent or Alternative Status among Persons Employed in Month t by Labor Force Status in Month t-1

	Contingent (1)	Temp help agency (2)	On-call (3)	Day Laborer (4)	Contract worker (5)	IC, wage and salary (6)	IC, Self-employed (7)	Self-employed, not IC (8)
Employed	0.035***	0.008***	0.014***	0.001***	0.005***	0.009***	0.058***	0.047***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Unemployed	0.199***	0.053***	0.092***	0.009***	0.010***	0.018***	0.068***	0.037***
	(0.009)	(0.005)	(0.006)	(0.002)	(0.002)	(0.003)	(0.005)	(0.003)
OLF and wanted a job	0.181***	0.027***	0.081***	0.006	0.004*	0.034***	0.113***	0.049***
	(0.014)	(0.006)	(0.010)	(0.004)	(0.002)	(0.007)	(0.011)	(0.006)
Other OLF	0.183***	0.011***	0.066***	0.007***	0.004**	0.018***	0.103***	0.081***
	(0.008)	(0.002)	(0.005)	(0.002)	(0.001)	(0.003)	(0.006)	(0.005)

SOURCE: Authors' analysis of CWS responses linked to CPS responses in the previous month. N=204,226. NOTES: Figures are predicted probabilities of being in the indicated work arrangement from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data for those who could be linked to a previous month CPS response. All models include dummies for gender, age group, race, ethnicity, education, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001.

who had been out of the labor force in the previous month but had wanted a job is similar to that for the previously unemployed. Those entering employment who had been out of the labor force but had not wanted a job the previous month, are more likely than those who were employed in the previous month to be contingent and also more likely to be self-employed, whether as an independent contractor or otherwise.

Paralleling our analysis in Table 8-2, we ask whether those entering employment from unemployment or out of the labor force but wanting a job are less likely to be happy with their work arrangements than those in continuing employment. Not surprisingly, this appears to be the case. Using the specification in Equation (4), we estimate weighted linear probability models with a binary dependent variable that takes a value of one for those who would prefer a different employment arrangement and zero otherwise. Table 8-4 reports estimates, based on these models, of the probability of preferring a different work arrangement for those with each of the four prior month labor force statuses. For contingent and all alternative work arrangements for

Table 8-4: Preference for a Different Employment Arrangement among Persons Employed in Month t by Labor Force Status in Month t-1

	Contingent (1)	Temp help agency (2)	On-call (3)	IC, wage and salary (4)	IC, Self-employed (5)	Self-employed, not IC (6)
Employed	0.596*** (0.007)	0.565*** (0.015)	0.481*** (0.011)	0.141*** (0.010)	0.076*** (0.003)	0.067*** (0.003)
Unemployed	0.729*** (0.020)	0.650*** (0.044)	0.613*** (0.031)	0.569*** (0.082)	0.258*** (0.042)	0.385*** (0.061)
OLF and wanted a job	0.604*** (0.042)	0.513*** (0.097)	0.611*** (0.065)	0.255* (0.103)	0.200*** (0.052)	0.047 (0.057)
Other OLF	0.352*** (0.022)	0.537*** (0.095)	0.334*** (0.032)	0.193*** (0.057)	0.085*** (0.020)	0.082*** (0.021)
N	7,395	1,535	3,271	1,728	12,333	10,507

SOURCE: Authors' analysis of CWS responses linked to CPS responses in the previous month.
NOTES: Figures are predicted probabilities of wanting a different work arrangement from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data for those who could be linked to a previous month CPS response. All models include dummies for gender, age group, race, ethnicity, education, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001

which we have job preference information, those coming from unemployment are much more likely than those continuing in employment to say they would prefer a different employment arrangement. This differential is especially large among those working as independent contractors and in self-employment. Those continuing in employment are generally highly satisfied with their independent contractor or other self-employment arrangement, while those entering these arrangements from unemployment are considerably more likely to say they would prefer to be doing something else. Consistent with results reported in Table 8-2, those coming from out of the labor force who had not wanted a job the previous month are much less likely to say they would prefer a non-contingent job or to prefer a job that is not on-call.

Using individuals' CWS records linked to their CPS responses in the following month, our final set of results examines the process of exit from contingent and alternative work arrangements. In creating the sample used to estimate these models, we are able to link nearly

three-quarters of the CWS respondents in 1995, 1997, 1999, and 2017 and most of the CWS

respondents in 2001 and 2005. We are especially interested in whether those in alternative

employment arrangements are more likely to be unemployed in the month following the CWS

interview, but we also explore the likelihood of labor force exit and changing jobs. To examine

the association between work arrangement in the CWS and future labor force status, we make

use of the following model:

(5) $y_{i,t+1} = \alpha_1 WA_{it} + \alpha_2 X_i + \gamma_w + \lambda_r + \epsilon_{i,t+1}$

We estimate a series of weighted linear probability models in which the dependent

variable is, alternately, an indicator of being unemployed, an indicator of being out of the labor

force, or an indicator of being in a new job in the month following the CWS. The key variables

of interest are indicator variables for the work arrangement observed in the CWS (WA_{it}). For

one set of regressions we include a dummy for being a contingent worker, and in a second set of

regressions, we distinguish between the group of eight mutually exclusive and exhaustive work

arrangements (temporary help agency worker, on-call worker, day laborer, contract company

worker, wage and salary independent contractor, self-employed independent contractor, non-

independent contractor self-employed, and standard wage and salary worker). As in other

regressions in this section, all models also include controls for demographic characteristics, CWS

wave dummies, and region.

Table 8-5 reports the predicted probability of being in the indicated labor force status for

those who are in contingent and non-contingent jobs (top panel) and in each of the eight work

arrangements (bottom panel), controlling for other variables. Looking first at the estimates in the

top panel, even holding other observable factors constant, we find contingent workers are more

than six times as likely as non-contingent workers to be unemployed in the month following their

Table 8-5: Labor Force Status in Month t+1 by Prior Month Employment Status among People Employed in Month t

	Exit to Employment (1)	Exit to OLF (2)	Changed Job (3)
Predictions from models with dummy for contingent in period t			
Contingent	0.061***	0.073***	0.084***
	(0.003)	(0.003)	(0.004)
Not contingent	0.009***	0.020***	0.039***
	(0.000)	(0.000)	(0.000)
Predictions from models with dummies for work arrangement in period t			
Temp-Help	0.060***	0.042***	0.109***
	(0.007)	(0.005)	(0.009)
On-Call	0.052***	0.064***	0.056***
	(0.004)	(0.005)	(0.005)
Day laborer	0.060**	0.091***	0.112***
	(0.019)	(0.021)	(0.024)
Contract company	0.016***	0.018***	0.053***
	(0.005)	(0.004)	(0.008)
IC wage and salary	0.024***	0.036***	0.059***
	(0.004)	(0.006)	(0.006)
IC self-employed	0.009***	0.033***	0.042***
	(0.001)	(0.002)	(0.002)
Self-Employed not IC	0.008***	0.035***	0.045***
	(0.001)	(0.002)	(0.002)
Wage & salary, not alt	0.010***	0.020***	0.040***
	(0.000)	(0.000)	(0.001)

SOURCE: Authors' analysis of CWS responses linked to CPS responses in the following month.
N=228,205
NOTES: Figures are predicted probabilities of being in the indicated labor force status from weighted linear probability regressions. Regressions fit using pooled 1995, 1997, 1999, 2001, 2005 and 2017 CWS data for those who could be linked to a subsequent month CPS response. All models include dummies for gender, age group, race, ethnicity, education, region and survey wave. Probabilities calculated with the Stata margin command using the default average probabilities of outcome setting. All probabilities are weighted. Robust standard errors in parentheses. *=p<0.05, **=p<0.01, ***=p<0.001

CWS interview (6.1 percent versus 0.9 percent). The estimates reported in column (2) and column (3) show that contingent workers are also much more likely to leave the labor force or to change employers than are non-contingent workers. Taken as a whole, these results imply that contingency as defined based on workers' subjective perceptions captures meaningful differences in job stability.

Turning to the estimates for alternative work arrangements shown in the bottom panel of Table 8-5, temporary help agency employees, on-call workers, day laborers, and independent contractors coded as wage and salary workers are much more likely to be unemployed in the month following the CWS interview than are traditional wage and salary workers. The percentages of these groups that are unemployed the following month are 6.0 percent, 5.2 percent, 6.0 percent, and 2.4 percent, respectively, compared to 1.0 percent for traditional employees. In contrast, the unemployment probabilities for contract company workers, self-employed independent contractors, and other self-employed individuals differ little from the probability for traditional employees. Workers in most of the alternative arrangements (all except contract company work) are more likely to leave the labor force than are traditional wage and salary workers. Those in every alternative arrangement are more likely to have changed jobs, though in the case of both self-employed independent contractors and other self-employed workers, the differences relative to traditional employment are very small. Alternative work arrangements thus appear to be less stable than traditional wage and salary jobs, but only those in a subset of these arrangements are more likely to end up unemployed. At least to some extent, the greater instability of these arrangements may reflect workers' preferences and is not necessarily a negative aspect of the job.

IX. SYNTHESIS OF FINDINGS AND LIMITATIONS OF THE CWS

Although the various alternative work arrangements measured in the CWS often are grouped into one category in research and policy analyses, the data show clear differences in the characteristics of workers in these arrangements and the quality of the jobs. Temporary help jobs are disproportionately held by those without a college degree, minorities, and youth, and on-call

jobs are disproportionately held by those with less formal education. Controlling for worker and job characteristics, these arrangements score low on all measures of job quality examined—wages, benefits, contingency, and job satisfaction. In contrast, independent contractors and other self-employed are disproportionately White, older, and more educated, and generally score well on indicators of job quality.

In our analyses, we distinguish between independent contractors who are wage and salary versus those who are self-employed. Holding constant worker and job characteristics, we find wage and salary independent contractors earn less than self-employed independent contractors and express considerably lower levels of satisfaction with their work arrangement. One possible explanation for this finding is that many "wage and salary" independent contractors, in fact, work primarily for one organization on a contract, not an employee, basis (Abraham, Hershbein, and Houseman, 2019, in press). The employment arrangement for such "dependent contractors" differs from that of the typical independent contractor who serves multiple clients and obtains these clients on his or her own (Harris and Krueger, 2015).

Though small in number, contract company workers—those whose employer contracts them out to another organization where they primarily work for one client at the client's worksite—are quite different from those in any other arrangement. Controlling for demographic and job characteristics, we find that they earn a wage premium, but are far less likely than standard wage and salary workers to receive benefits from their employer.

Although the CWS shows no overall trend increase since 2005 in any contingent or alternative work arrangement, our detailed analyses reveal some interesting subgroup trends within certain arrangements. The data show a significant increase since 2005 in the use of

temporary help workers in manufacturing and also in production and transportation and material moving occupations, which are heavily used in the manufacturing sector.

Additionally, the slight decline in independent contracting between 2005 and 2017 masks countervailing subgroup trends. Independent contractors are the most prevalent of the alternative work arrangements in the CWS, and they include many professional freelancers and consultants. Although weekly earnings and some of the other indicators for job quality are higher among independent contractors than for traditional wage and salary workers, as noted, research has pointed to the outsourcing of low-wage work by companies as a mechanism to lower compensation and shed legal responsibilities for these workers (Dube and Kaplan, 2010; Weil, 2014; Goldschmidt and Schmieder, 2017). While some outsourced workers are employed by a contract company, others are treated as independent contractors. Consistent with the previous research, the CWS shows an increase between 2005 and 2017 in the share of relatively disadvantaged populations—Blacks, Hispanics, and workers without a college education—as well as of part-time workers who report being independent contractors on their main job. Although the increase found for each of these groups is modest, these developments and the heterogeneity within the large independent contractor category warrant further study.

Individuals who have lost their jobs, are unemployed, or are out of the workforce but want employment, commonly end up in contingent and alternative work arrangements. We find that their satisfaction with these arrangements is relatively low. While many in contingent and alternative arrangements transition to new employers in the month following the CWS, as many or more become unemployed or exit the labor force. These descriptive statistics by themselves cannot tell us whether taking a contingent or alternative work arrangement improves or harms future labor market outcomes for these individuals. Nonetheless, the high rate of job

dissatisfaction and subsequent relatively low employment rates—particularly among those in contingent, temporary help, day laborer, and on-call jobs—raises concerns about their use as stepping stones to regular employment.

In summary, while motivated by concerns that contingent and alternative work arrangements are associated with worse outcomes for workers relative to standard wage and salary arrangements, the CWS data show that the situation is more complex. Workers in certain alternative arrangements—most notably the largest, self-employed independent contractors—receive relatively high compensation and a large majority are satisfied with their work arrangement. At the same time, there is considerable heterogeneity within each arrangement. As noted, although a majority are satisfied with the arrangement, larger percentages of minorities in independent contractor arrangements would prefer to work as an employee. Similarly, while contingent, temporary, and on-call work are associated with compensation penalties and low levels of satisfaction, certain individuals in these arrangements—such as many transitioning from out of the labor force and older workers—prefer these arrangements. Evidence from the CWS highlighted in this report points to the need for further research to understand the different types of work arrangements typically grouped under the umbrella of independent contracting and the implications of these various arrangements for workers. Additionally, the associations between contingent and certain alternative work arrangements and subsequent unemployment underscores the need for further research into the causal effects of using alternative arrangements as a stepping stone to stable employment.[21]

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[21] A sizable body of research, summarized in Houseman (2014), has examined the causal effects of temporary help employment as a pathway to regular work.

Limitations of the CWS and Complementary Information Sources

The CWS is a valuable resource for studying nonstandard work arrangements in the United States. The Supplement has collected detailed data on a set of consistently measured contingent and alternative work arrangements for over two decades and has been the basis for many studies into the implications of these arrangements for workers.

Nonetheless, the CWS has limitations. Except for the few questions on platform work in the 2017 CWS, the survey only queries workers about the work arrangements on respondents' main jobs. Other data suggest that many people hold secondary jobs to supplement their income and that these secondary jobs play an important role in many families' finances (Abraham and Houseman, 2019). By design, such secondary employment, which is particularly likely to be in an alternative arrangement, is not captured in the CWS.

Concerns also have been raised about the accuracy of the CWS in capturing types of certain work arrangements, including temporary agency work and contract company work (see e.g. Bernhardt et al., 2016). When asked about temporary help work, many respondents appear to confuse the client company with their employer, which is the temporary help agency, and under-report it. The BLS reports the narrow definition of contract company work because respondents may have difficulty accurately reporting about broader measures that require an understanding of their employer's contracting arrangements with other organizations. Studies using administrative tax data also indicate that the CPS substantially undercounts the share who are self-employed, including independent contractors (see e.g. Abraham et al., 2020; Abraham et al., forthcoming). The new questions about electronically mediated work included on the 2017 CWS were a welcome addition, but respondents appear to have had considerable trouble answering them.

Furthermore, while one of the CWS's great strengths is the fact that the survey instrument has not changed, allowing for consistent measures of contingent and alternative work

arrangements over time, this consistency is also a weakness. The CWS, for the most part, has not been adapted to collect data on other work arrangements that have grown in importance; nor has it been modified to address problems in its measures. Moving forward, it will be important to balance the desire for continuity against the need for accurate information about emerging workplace developments.

Other data, including that from other government household and employer surveys, nongovernmental surveys, and government and proprietary administrative data, provide rich complementary information with which to study various work arrangements and their evolution. In future work, we will study the insights that other data sources offer on alternative work arrangements and consider potential explanations for any conflicting evidence between these sources and the CWS about the nature and magnitude of specific work arrangements.

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Appendix Table A: Prevalence of Contingent and Alternative Arrangements, by Demographic and Job Characteristic

	Contingent	Temp help agency	On-call	Contract worker	IC, wage and salary	IC, self-employed	Self-employed, not IC	Regular W&S
Age 16-24	0.090	0.014	0.023	0.004	0.006	0.013	0.010	0.927
Age 25-34	0.045	0.011	0.015	0.007	0.008	0.040	0.027	0.891
Age 35-44	0.032	0.007	0.015	0.005	0.009	0.063	0.049	0.850
Age 45-54	0.028	0.006	0.012	0.005	0.009	0.073	0.060	0.834
Age 55-64	0.029	0.007	0.015	0.005	0.012	0.086	0.077	0.798
Age 65 plus	0.049	0.008	0.035	0.006	0.024	0.140	0.138	0.648
Female	0.045	0.010	0.017	0.003	0.009	0.041	0.038	0.881
Male	0.040	0.008	0.015	0.007	0.009	0.074	0.056	0.830
White	0.041	0.007	0.016	0.005	0.009	0.063	0.051	0.847
Black	0.047	0.018	0.016	0.007	0.008	0.030	0.017	0.904
Asian	0.056	0.009	0.011	0.010	0.008	0.048	0.057	0.856
Other race	0.067	0.016	0.023	0.007	0.006	0.054	0.033	0.859
Hispanic	0.059	0.013	0.019	0.005	0.008	0.041	0.026	0.883
Non-Hispanic	0.040	0.008	0.016	0.005	0.009	0.061	0.050	0.850
Less than high school	0.062	0.012	0.023	0.004	0.009	0.046	0.037	0.864
High school	0.034	0.009	0.015	0.005	0.008	0.055	0.047	0.859
Some college	0.044	0.010	0.017	0.005	0.008	0.056	0.042	0.861
College plus	0.041	0.006	0.014	0.006	0.011	0.069	0.057	0.837

Appendix Table A: Prevalence of Contingent and Alternative Arrangements, by Demographic and Job Characteristic (continued)

	Contingent	Temp help agency	On-call	Contract worker	IC, wage and salary	IC, self-employed	Self-employed, not IC	Regular W&S
Usually part-time	0.095	0.010	0.042	0.004	0.018	0.080	0.058	0.786
Usually full-time	0.030	0.009	0.010	0.006	0.007	0.053	0.045	0.870
Occupation:								
Management	0.016	0.001	0.005	0.002	0.006	0.090	0.144	0.752
Business, finance	0.033	0.009	0.005	0.006	0.010	0.072	0.030	0.867
Engineering, architecture	0.039	0.011	0.007	0.026	0.005	0.043	0.013	0.895
Science	0.077	0.010	0.005	0.010	0.011	0.073	0.029	0.863
Social services	0.040	0.002	0.015	0.003	0.009	0.014	0.004	0.953
Law	0.026	0.004	0.004	0.001	0.009	0.111	0.130	0.742
Education	0.093	0.002	0.040	0.002	0.007	0.016	0.009	0.923
Arts, sports, media	0.070	0.006	0.017	0.008	0.030	0.227	0.062	0.648
Healthcare practitioner	0.027	0.007	0.028	0.005	0.007	0.034	0.051	0.870
Healthcare support	0.028	0.018	0.031	0.007	0.007	0.017	0.008	0.911
Protective service	0.025	0.004	0.028	0.033	0.003	0.007	0.002	0.923
Food service	0.041	0.002	0.021	0.003	0.002	0.003	0.007	0.961
Building, grounds maintenance	0.047	0.008	0.022	0.010	0.026	0.082	0.031	0.816
Personal care, service	0.083	0.005	0.024	0.003	0.028	0.137	0.142	0.662
Sales	0.027	0.003	0.010	0.001	0.023	0.074	0.038	0.850
Administrative	0.051	0.019	0.010	0.002	0.004	0.013	0.020	0.933
Farming, fishing, forestry	0.149	0.009	0.036	0.002	0.008	0.051	0.047	0.829
Construction and extraction	0.077	0.005	0.038	0.013	0.016	0.164	0.030	0.725
Installation and repair	0.025	0.005	0.013	0.006	0.004	0.056	0.036	0.878
Production	0.033	0.022	0.006	0.002	0.002	0.023	0.017	0.929
Transportation and moving	0.041	0.018	0.029	0.003	0.008	0.041	0.018	0.881

Appendix Table A: Prevalence of Contingent and Alternative Arrangements, by Demographic and Job Characteristic (continued)

	Contingent	Temp help agency	On-call	Contract worker	IC, wage and salary	IC, self-employed	Self-employed, not IC	Regular W&S
Industry:								
Agriculture,fishing, forestry, hunting	0.066	0.002	0.016	0.001	0.004	0.108	0.401	0.459
Mining	0.025	0.009	0.022	0.014	0.003	0.024	0.024	0.903
Construction	0.066	0.004	0.030	0.011	0.016	0.197	0.046	0.689
Manufacturing	0.023	0.013	0.005	0.002	0.003	0.014	0.020	0.942
Wholesale, retail	0.023	0.003	0.009	0.001	0.005	0.043	0.065	0.873
Transportation, utilities	0.026	0.004	0.026	0.005	0.010	0.050	0.027	0.878
Information	0.039	0.008	0.014	0.005	0.015	0.059	0.022	0.876
Financial activities	0.018	0.004	0.006	0.002	0.021	0.070	0.047	0.849
Professional, business services	0.064	0.043	0.012	0.024	0.011	0.134	0.063	0.711
Educational, health services	0.062	0.004	0.027	0.003	0.005	0.022	0.027	0.911
Leisure, hospitality	0.041	0.002	0.019	0.003	0.004	0.038	0.040	0.894
Other services	0.052	0.004	0.017	0.002	0.034	0.112	0.095	0.734
Public administration	0.033	0.002	0.014	0.002	0.003	0.000	0.000	0.978
N	12,443	2,334	4,904	1,472	2,650	17,972	15,498	248,392

SOURCE: Authors' analysis of CWS data.

NOTES: All tabulations are weighted using CWS weights.

Appendix Table B: The Effect of Race, Ethnicity, and Educational Attainment interacted with Independent Contractor Status on Earnings

	ln(weekly earnings) difference compared to standard wage and salary worker	
Temp help agency	-0.130***	-0.130***
	(0.013)	(0.013)
On-call	-0.148***	-0.146***
	(0.010)	(0.010)
Day laborer	-0.165***	-0.159***
	(0.033)	(0.033)
Contract worker	0.084***	0.082***
	(0.016)	(0.016)
IC, wage and salary	0.033*	0.082***
	(0.013)	(0.015)
IC, self-employed	0.040***	0.089***
	(0.007)	(0.010)
Self-employed, not IC	0.007	0.005
	(0.008)	(0.008)
Age 16-24	-0.416***	-0.414***
	(0.007)	(0.007)
Age 25-34	-0.136***	-0.137***
	(0.006)	(0.006)
Age 45-54	0.029***	0.030***
	(0.006)	(0.006)
Age 55-64	-0.020**	-0.019**
	(0.007)	(0.007)
Age 65 plus	-0.173***	-0.170***
	(0.010)	(0.010)
Male	0.250***	0.250***
	(0.005)	(0.005)
Black	-0.091***	-0.101***
	(0.007)	(0.007)
Asian	-0.050***	-0.055***
	(0.011)	(0.010)
Other race	-0.064***	-0.075***
	(0.018)	(0.016)

Appendix Table B: The Effect of Race, Ethnicity, and Educational Attainment interacted with Independent Contractor Status on Earnings (continued)

	Independent contractor	
	(1)	(2)
Hispanic	-0.075***	-0.072***
	(0.007)	(0.006)
Less than high school	-0.173***	-0.168***
	(0.007)	(0.008)
Some college	0.062***	0.065***
	(0.005)	(0.006)
College plus	0.312***	0.341***
	(0.006)	(0.007)
IC*Black	-0.094***	
	(0.020)	
IC*Asian	-0.015	
	(0.027)	
IC*Other race	-0.079	
	(0.045)	
IC*Hispanic	0.010	
	(0.017)	
IC*Less than high school		-0.031
		(0.019)
IC*Some college		-0.021
		(0.013)
IC*College plus		-0.137***
		(0.013)
N	103,517	103,517

SOURCE: Authors' analysis of CWS data.
NOTES: Figures are coefficient estimates from weighted linear regressions. All models include dummies for gender, age group, race, ethnicity, education, part-time status, occupation, industry, region and survey wave. Robust standard errors in parentheses.
*=p<0.05, **=p<0.01, ***=p<0.001