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Independent Contracting, Contingent Workers, Personal Flexibility, Work-Life, Information Technology Industry

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MEMBERSHIP HAS ITS PRIVILEGES? CONTRACTING AND ACCESS TO JOBS THAT ACCOMMODATE WORK-LIFE NEEDS

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Using job-spell data based on an original survey of Information Technology (IT) degree graduates from five U.S. universities, the authors investigate the link between contracting and a set of job characteristics (accommodating flexible work hours, total work hours, and working from home) associated with work-life needs. Compared with regular employees in similar jobs, workers in both independent- and agency-contracting jobs report more often working at home and working fewer hours per week. Further, agency contracting (but not independent contracting) is associated with lower odds of being able to set one's own work hours. Important differences also emerge in workplaces of varying sizes. For each job characteristic, as workplace size increases, independent contracting jobs deteriorate relative to regular employment jobs. As a consequence, in large workplaces, independent contracting jobs appear to be less accommodating of work-life needs than regular employment jobs.

Independent contractors and employment-agency contractors together represented 8.3% of the U.S. workforce in 2005 (Bureau of Labor Statistics 2005). These contracting workers fall outside of the regular employment relationship, and researchers argue that their experiences are likely to differ from regular employees along a range of dimensions. Contractors, for example, tend to be excluded from many of the workplace policies, norms, and legal protections covering regular employees (Barley and Kunda 2004). Even though they often perform work similar to regular employees, they are legally distinguished from them (Davis-Blake, Broschak, and George 2003; Smith 2001). Although the expected tenures of regular employees in a given workplace may vary, the corresponding expectation for contractors is explicitly temporary in nature. As a consequence, contractors are not typically viewed to be organizational members of the same standing as regular employees.

These apparent differences between contractors and regular employees have motivated an increasing amount of research. One strand of scholarship focuses on why firms use independent contractors and what advantages or costs accrue to those firms that do so (Abraham and Taylor 1996; Pfeffer and Baron 1988; Davis-Blake and Uzzi 1993).

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Other research focuses on why some workers decide to become contractors as opposed to becoming regular employees (Bidwell and Briscoe 2009). For example, looking at skilled contractors, Mieksins and Whalley (2002: 86–88) found that workers often enter contracting because they hope to gain control over aspects of their job such as work hours, schedule, and work location in order to better meet their personal work-life needs. Kunda, Barley, and Evans (2002) also unearthed a wide range of motivations, including hopes of enhanced income and autonomy, as well as issues related to working time and personal flexibility.

Given the rising interest among workers in finding jobs that can accommodate their work-life needs (Galinsky et al. 2004), a debate has emerged over the role that contracting might play in providing such accommodating jobs. Some argue that contracting offers workers the chance for more flexibility in determining their own work hours, schedules, and work locations (Albert and Bradley 1997; Pink 1997; Kanter 1995; Horowitz and Buchanan 2005). Typically, such proponents invoke images of highly skilled technical or professional workers doing the contracting. Others point to research on the negative consequences of contracting for workers' wages, health benefits, and training (Kalleberg, Reskin, and Hudson 2000; Ferber and Waldfogel 1998; Lautsch 2003), and suggest the same pattern should extend to the ability of contracting jobs to accommodate work-life needs (Barker and Christensen 1998; Rogers 2000).

Among the few empirical studies to date on contracting and work-life issues is research conducted by Barley and Kunda (2004), who asked 65 high-skill contractors to describe in qualitative terms the flexibility they experienced. The authors explored several dimensions of flexibility—including temporal flexibility—and found that contractors are generally more constrained than one might have expected. That study, however, lacked a comparison group of similarly skilled regular employees. Some studies have used the Current Population Survey (CPS) Contingent Worker Supplement to examine issues related to working time. In particular, Spalter-Roth and colleagues (1997), focusing on professional and managerial workers in the CPS data, found that contractors worked fewer hours on average than regular employees.

In this paper, we extend recent research by examining how independent contracting differs with regard to job characteristics commonly associated with work-life balance, using survey data on high-skill Information Technology (IT) workers. The prior lack of published studies on this topic may stem from the difficulty in surveying a large sample of comparable skilled workers engaged in both regular employment and independent contracting. Our approach to this issue is to survey past graduates from university IT degree-granting programs, asking respondents for information about all of their regular employment and contracting job spells occurring up to the point of the survey. This method provides a relatively uniform sample with which to compare job spells that are similar in many respects yet differ in terms of whether they occur under regular employment or through contracting. By including in our analyses multiple job spells from the same individuals, we capture a relatively large number of contracting spells that are otherwise in short supply in cross-sectional samples of workers. We distinguish between two types of contracting—independent contracting and agency contracting. Whereas under independent contracting workers form a direct relationship to the client firm, agency contracting is conducted through a staffing agency that serves as the employer of record for legal purposes and acts as an intermediary match-maker between workers and client firms (we use "contractors" to refer to both groups together).

Jobs that Accommodate Work-Life Needs

A broad spectrum of workers want jobs that better accommodate their work-life needs, including those workers in high-skill technical, professional, and managerial occupations (Galinsky et al. 2004). Rising interest in such jobs tracks a corresponding rise in dual-earner couples who face heightened

time pressures and increasing conflicts between their work and parenting needs (Jacobs and Gerson 1998). Another broad array of workers interested in work-life issues include those caring for elderly parents, those involved in community work, and those whose personal values and preferences encompass other activities in addition to work (Bookman 2004; Valcour, Bailyn, and Quijada 2006). Evidence suggests that demand for jobs that accommodate work-life needs may not be met by positions employers have made available. For example, nationally representative surveys indicate that a majority of workers would like more flexible work options, including working fewer hours than they do currently (Kalleberg 2007); many would even sacrifice income and career prospects for this opportunity (Jacobs and Gerson 2004; Galinsky et al. 2004).

Jobs themselves vary widely in how they can accommodate work-life needs. It is useful to focus on a few easily observed and comparable job characteristics as a starting point. Such job characteristics will not be uniformly associated with accommodating all workers' work-life needs, but they serve as key indicators that are widely acknowledged in both scholarly and popular literature. We focus on three such indicators. First, some jobs are accommodating because they allow workers the ability to determine their work hours, thereby permitting them to spend periods of time engaged in other activities that do not allow for flexible scheduling. A worker's ability to set work hours increases his or her work-life balance, net of family and work characteristics (Tausig and Fenwick 2001). Golden (2001) found wide variation across the U.S. workforce in the extent to which workers reported having such flexibility to determine the exact hours they work.

Second, the extent to which a job can accommodate work-life balance is also influenced by the total work hours required of workers. Most simply, jobs with *too* many hours constrain workers' ability to do anything else other than work; accordingly, long work hours are one of the key correlates of work-life conflict (Greenhaus and Beutell 1985; Wharton and Blair-Loy 2006). Even if workers can theoretically determine which hours they are working, time pressures resulting from overwork can prevent them from feeling that they can take the time off to engage in non-work activities. This phenomenon varies by occupation, but long work hours among professional and managerial workers appear to be increasing over time (Reynolds 2003).

Third, jobs that permit working at home may ostensibly accommodate a work-life balance. Working at home implies more of an ability to integrate work activities and non-work activities, and the ability to switch back and forth between them. Working at home also involves less commute time, freeing up additional hours that could potentially be devoted to family or other non-work activities. Although the technologies that enable professional and managerial workers to telecommute could potentially make workers more available to supervisors, leading to an increase in work hours (see Valcour and Hunter 2005), recent studies find that working at home is associated with decreased work-family conflict (Gajendran and Harrison 2007; Raghuram and Wiesenfeld 2004).

Why do some jobs have these characteristics and others not? For workers in regular employment relationships, much has been written about how the traditional rules, norms, and incentives of the American workplace lead jobs to be relatively unaccommodating of work-life needs (Schor 1991; Bailyn 1993). Organizational rules may determine work hours and restrict telecommuting for some employees. For professional and managerial workers, unwritten norms and incentives play an important role. For example, "facetime" expectations tell workers to be present in the office, and not elsewhere, during the normal hours of business in their workplace—even if there is no productivity-based reason for their presence (Perlow 1999). Long work hours are a widely perceived indicator of workers' commitment to their work, contributing to a "rat race" mentality that encourages workers to log ever higher numbers of hours, perhaps especially among professional and technical workers whose output is otherwise hard to assess (Landers, Rebitzer, and Taylor 1996).

The availability of employee work-life benefits may also influence whether a job can accommodate work-life needs (Kelly et al. 2009). During the 1980s and 1990s, for example, many corporations instituted new work-life benefits policies (Osterman 1995). These policies are designed to accommodate workers' various needs outside the workplace, including not only family caregiving but also other kinds of non-work activities depending on the individual worker. Three of the most common work-life benefits are flextime (flexible schedules, control over starting and stopping times); telecommuting (telework, policies enabling work to be done from home or another location outside the workplace); and part-time work (reduced-hours work, a shorter work week, usually accompanied by a reduction in compensation) (Kossek and Distelberg 2007; Galinsky et al. 2004). These policies are often justified as means to enhance recruitment and retention for valuable professional and technical workers (Glass and Estes 1997).

Independent Contracting Jobs that Accommodate Work-Life Needs

In contrast to regular employees, independent contractors and agency contractors conduct their work while remaining explicitly outside the domain of the conventional employment relationship. Firms tend to hire contractors for temporary projects, for which the contractors are typically expected to possess the skills necessary—requiring no further training—to conduct their work. Moreover, contractors are excluded from most formal policies that apply to regular employees, including benefits (Houseman 2001). Given their temporary relationship with the firm,[1] contractors are also less likely to be embedded in the social relationships, cultural norms, and work routines of the firm. Although contractors need to be integrated into the workplace during the course of a particular project, they nonetheless tend to remain organizational outsiders in terms of their psychological and social involvement with the firm (Van Dyne and Ang 1998; Barley, and Kunda 2004: 215; but see Pearce1993).

These differences may affect whether contractors have more or less access to jobs that accommodate work-life needs, relative to regular employees. There are arguments to be made for both greater and lesser accommodation in contracting jobs. On the one hand, if workplaces tend to constrain the characteristics of jobs offered to their employees through norms that encourage employees to adhere to rigid schedules and long hours, and to work solely in the office rather than at home, then the fact that contractors are positioned outside the workplace may allow them a degree of freedom

[1] There is little published data on the length of contracting jobs. Evans, Barley, and Kunda (2004: 31) reported an average job spell length of seven months for the contractors they interviewed. Fernandez-Mateo (2008) examined records of high-skill graphic designers and web developers contracting through a temporary staffing agency, finding an average contract length of two months. Houseman and Polivka (2000) used CPS data to find that 52% of agency contractors had switched jobs within a 12-month period, whereas 9% of independent contractors had done so. However, they cautioned that the CPS independent contractor category was highly heterogeneous in its occupation and industry composition. Using the same CPS data, Polivka, Cohaney, and Hipple (2000) showed that independent contractors are most likely to be in construction, business/auto/repair services, and personal services industries. Contracting patterns in those industries may be quite different than the high-skill technology and knowledge work that is the focus of this research.

We conducted our own analysis using a question from the CPS Contingent Worker Supplement asking independent contractors, "How long have you worked for the employer where you worked last week?" Unfortunately, non-response was common for this question, possibly because it uses the term "employer" rather than "client." Out of 3435 independent contractors surveyed in 2001, only 346 responded; out of 2569 independent contractors surveyed in 1999, only 273 responded. Respondents were asked to answer either in years, months, weeks, or days. We converted responses to a common unit (months) to calculate a median of 36 months (mean 76.4) in 1999 and a median of 24 months (mean 65.8) in 2001. Those values reflect independent contractors in all occupations. Focusing just on IT workers (using the occupation code for math and computer scientists), we only have data for five independent contractors across both surveys. Those five contractors reported job lengths of 2, 3, 7, and 36 months (median 3 months, mean 10.2 months). In contrast, average employee tenure for regular workers is around five years (see Cappelli 2008 for a review of recent worker tenure data).

from those norms. Formally, contractors are simply obliged to follow the rules in a vendor agreement or, in the case of contracting through an agency intermediary, a consultant agreement. Those vendor agreements are generally short and do not discuss work hours, schedules, or location of work. Front line managers are often discouraged from discussing those issues as well; doing so could create the appearance of a regular employment relationship for purposes of tax and employment law (Barley, and Kunda 2004: 162–5). Because they are classified differently, workers in contracting jobs might also more easily receive idiosyncratic deals from supervisors, since separate classification helps ensure that any special deals provided to contractors need not be extended to regular organizational members (Rousseau, Ho, and Greenberg 2006). Indeed, observers often argue that independent contractors should rightly view themselves as being broadly liberated from the norms and expectations that govern the work lives of regular employees (Pink 1997; Malone 2004). This leads us to the following hypothesis:

Hypothesis 1A: Independent contracting and agency contracting will be associated with job characteristics that are more accommodating of work-life needs (higher odds of working at home, shorter work hours, and higher odds of being able to decide work hours), relative to regular employment.

On the other hand, if work-life integration depends on access to workplace policies and benefits targeted at employees, then the fact that contractors are not accorded full membership in the workplace suggests that they will lose out relative to regular employees. Contractors are excluded from access to benefits that accrue to regular employees (Houseman 2001). This means any benefits designed to expand employees' ability to request flexible hours, telecommute, or obtain a part-time schedule are off limits to contractors. These policies give employees the right to be excepted, or to request exception, from those workplace norms described above governing work hours, schedules, and work locations (Kelly and Kalev 2006). Other work-life initiatives targeted to employees are also likely to exclude contractors; even inviting contractors to related meetings could create the appearance of a legal employment relationship (Steingold 2007). If organizations encourage supervisors to grant discretionary requests from workers related to their work-life needs, contractors are unlikely to receive comparable treatment. Recent studies have found that regular employees tend to have negative reactions to working alongside contractors, particularly contractors in temporary agency arrangements (Davis-Blake, Broschak, and George 2003), suggesting that workers and supervisors will be sensitive to maintaining distinctions in treatment between these two groups. This leads to the following alternative hypothesis:

Hypothesis 1B: Independent contracting and agency contracting will be associated with job characteristics that are less accommodating of work-life needs (lower odds of working at home, longer work hours, and lower odds of being able to decide work hours), relative to regular employment.

Workplace Size, Contracting, and Jobs that Accommodate Work-Life Needs

Large organizations tend to differ from smaller ones in how they treat regular employees, and those differences may in turn shape outcomes for contractors relative to regular employees. In particular, building on Hypothesis 1B, if regular employment accommodates work-life needs because employees can access policies such as those discussed above, then contractors may become progressively more disadvantaged relative to regular workers as workplace size increases. This is the case because as workplace size increases, firms tend to offer employees more in the way of human resource policies (Marsden, Cook, and Kalleberg 1996), including those designed to accommodate work-life needs such as flexible schedules, telecommuting, and part-time work (Glass & Estes 1997; Knoke 1996; Osterman 1995; Briscoe 2006). Contractors do not have access to those policies, nor would supervisors be as likely to extend access to them voluntarily, given contractors'

shorter-term relationship to the firm relative to regular employees. This line of argument suggests that any advantage of regular employment over contracting based on access to work-life policies may increase with greater workplace size. As the benefits of organizational membership increase in larger workplaces, the relative position of contractors vis-à-vis regular employees may progressively deteriorate.[2] This leads to our second hypothesis:

Hypothesis 2: As workplace size increases, independent contracting and agency contracting will be associated with job characteristics that are increasingly less-accommodating of work-life needs (lower odds of working at home, longer work hours, and lower odds of being able to decide work hours), relative to regular employment.

Longer Breaks from Work

Some workers' family and non-work needs can only be accommodated through extended absences from the workplace, rather than through the schedule and location changes or moderated total work hours discussed above. Regular employees in most U.S. organizations are likely to have access to paid vacation and sick days (Knoke 1996); employees of organizations with at least 50 employees are also eligible for extended unpaid leaves of absence under the Family & Medical Leave Act. Contractors, by definition, lack access to such benefits provided to regular employees in their client sites.

Contractors may experience breaks between contracting jobs, however, allowing them the opportunity to accommodate work-life interests in a different way than would be possible for regular employees. Such breaks are unlikely to be a function of the jobs and workplaces in which the contractor works, but rather a characteristic of contracting careers over time. Barley and Kunda (2004) found such between-job breaks among high-skill contractors to be largely composed of unwanted downtime, which most contractors accordingly sought to minimize. Nonetheless, the authors did find a few contractors who used downtime to enhance their lives outside of work. We studied breaks that follow contracting jobs in our data and report the results in a separate section below. We also summarize related data on length of job spell, overlaps between job spells, and odds of repeat contracting—all potentially relevant to the question of how contracting accommodates work-life balance. These considerations lead us to offer the following hypotheses:

Hypothesis 3: Independent contracting and agency contracting will be associated with longer breaks following job spells.

Hypothesis 4: For independent contracting and agency contracting, the reasons for breaks following job spells will more often relate to accommodation of work-life needs.

Empirical Setting: Contracting in the Information Technology Sector

Our empirical setting is the professional IT sector. As a whole, from 1994 to 2004 the IT sector experienced one of the highest sectoral job growth rates in the U.S. economy (Berman 2005; Bureau of Labor Statistics 2003). An IT worker's tasks typically involve creation or maintenance of software, sometimes also linked to an understanding of specific hardware or devices involved in the final product. Examples of IT work include software development, software maintenance,

[2] In contrast, Hypothesis 1A does not generate an obvious prediction with respect to workplace size since it is unclear how generalized norms or organizational cultures that constrain the jobs of regular employees would be correlated with size.

One other possibility we considered is that the specialized hiring and legal staff found in large organizations would seek to enforce the distinction between independent contractors and employees more stringently. The widely used IRS "20 factor" test used to guide worker classification indicates that contractors should determine their own schedules and work locations. Misclassification can be costly, as Microsoft discovered in a class-action lawsuit alleging that large numbers of contractors were treated too much like employees (van Jaarsveld 2004). In theory, staff in large organizations could try to enforce distinctions through oversight of front line supervisors; in practice though, Bidwell (2009) found supervisors to be essentially unresponsive to centralized administrative influences in their decisions about how to treat contractors.

systems administration, database design and administration, and quality assurance (Department of Commerce 2003). Technical work often is organized in project teams and may also involve particular work systems that guide project management or facilitate the use of technical knowledge and technical tools by others.

IT contractors do work similar to that of regular employees, and in fact are often assigned to work with regular employees in project teams (Evans, Kunda, and Barley 2004; Mieksins and Whalley 2002; Bidwell 2009). The contracting mode of operation may be particularly well suited to the IT sector, since skills and knowledge in this sector transfer easily across firms and evolve rapidly over time (Kochan and Barley, 1999; Benner 2002). In fact, the popular cultural image of an independent contractor appears to be that of a high-skill technical worker (Pink 1998; Kanter 1995).

IT work can be challenging from the perspective of accommodating work-life needs. One reason is that IT work is knowledge work and as such it involves complex cognitive tasks that are hard to define in advance of their execution. The timing of IT work cannot necessarily be planned in advance, and unpredictable contingencies often arise. Much of IT work also is conducted with iterative input from end-users, clients, or team members, posing further constraints on individual workers. Project deadlines create time pressure, and task interdependencies constrain schedule and location flexibility. Workplace cultural norms are also famously demanding on IT workers, making jobs less accommodating of work-life needs since workers feel the need to fit in with the prevailing technical culture. For example, Perlow (1999) used the term "time famine" to describe a situation found among software engineers in which workplace norms emphasize a heroic commitment to their work, leading to extremely long hours spent in the workplace.

Data and Sample

The methods we use to examine job characteristics of IT contracting and regular employment reflect the fact that contracting typically represents only a phase in the typical IT worker's overall career. As a result, cross-sectional studies typically find relatively low rates of contracting, even in technical occupations (Hipple 1998). To ensure a larger sample of contracting events, and also to ensure a more comprehensive image of the role that contracting plays in IT careers over time, we surveyed a representative sample of high-skilled IT workers about the entire sequence of jobs they held since entering the field. In discussing these data, we refer to each job within an individual worker's sequence as a job spell.

To collect these data, we conducted a Computer Assisted Telephone Interviewing (CATI) survey covering the career histories of IT graduates from five major public and private U.S. universities who graduated from the years 1988 to 2001. The following majors were included: Computer Science, Computer Engineering, Information Technology, and Information Systems (including Management Information Systems). Our survey sample was defined by the set of participating universities' records for all those who should have received a degree during the years 1988 to 2001, for whom current contact information existed. We were allowed access to these records subject to Institutional Review Board approval for confidentiality, and under the auspices of the grant funding agency that sponsored the survey.

We developed the survey instrument through several iterations of pre-tests, and the resulting interview took between 25 and 45 minutes to complete. Interviews began in September 2003 and were completed by April 2004. The survey received a final usable response rate of 46%. In order to assess the potential for non-response bias, we examined refusal rates and non-contact rates by degree type and year of graduation. Refusal rates varied somewhat by degree type (6% for doctoral degrees, 11% for master's and bachelor's degrees, 16% for associate's degrees), as did non-contact rates (46% for doctoral degrees, 49% for master's degrees, 46% for bachelor's degrees, and 45% for associate's degrees). Refusal rates by year of graduation ran from 7% to 13% but without

any visible time trend; similarly, non-contact rates by year of graduation ran from 39% to 55%, but without a visible trend.[3] To adjust for possible response bias, we created proportional weights based on degree type and year of graduation; they are included in all the analyses presented here.

Respondents answered a common set of questions concerning each successive job spell they reported. The job-spell data structure encompasses workers who report contracting at any point in their past, as well as those who never worked as contractors, providing a large but representative sample of contracting spells and comparable regular employment spells. Of those respondents with complete data who also passed a screening question indicating that they had held at least one IT job, we added several further exclusions at the job spell level. Specifically, we excluded job spells that indicated internships (by the job title) and regular employment job spells whose job title was clearly unrelated to IT (for example, Chief Financial Officer) or whose job title was CEO or President in a workplace of 50 or more (we assumed those were leadership roles with little technical content). We also excluded job spells that indicated self-employment (but not contracting of either type). The resulting sample comprises 4805 job spells reported by 2348 individuals.

The number of job spells reported by individual workers ranges from one to nine, with a median of two job spells per worker. The number of contracting spells ranges from zero to nine, with the great majority of respondents having no contracting experience. Mean job spell length for regular employment is 49 months (median 37 months), including those job spells reported to be ongoing at the time of the survey. Mean independent contracting spell length is 22 months (median 12 months), and mean agency contracting spell length is 11 months (median 7 months). For comparison purposes, the U.S. Census Bureau defines a temporary "contingent" job as one that is expected to last for less than 12 months; the great majority of agency contracting jobs in our sample fits this definition, but only some of the independent contracting jobs do.

Variables

Independent Contractor and Agency Contractor. We define contractors as workers providing services to a firm on a temporary basis while not being formal employees of that firm. The most common type of contracting in our data is what is usually referred to as independent contracting, in which the worker contracts to provide services directly to the client. Some contractors provide services through a temporary agency, an intermediary connecting the needs of clients to the skills of workers (Fernandez-Mateo 2007). Intermediaries also serve as the employer of record for tax and legal purposes. As noted above, we call these agency contractors and consider them separately in the analyses presented.

We determine contractor status using the following two survey questions asked of respondents for each job spell: (1) "Was/is this job: part-time; full-time; or on a temporary contractual basis?" and (2) "Was/is this: self-employment; or was/is this job through the government; a non-profit organization; a temporary agency; or was/is it through some other type of private organization?" Job spells are assigned a 1 for *Agency Contractor* whenever the answer to the second question is a temporary agency (regardless of their answer to the first question).[4] Job spells

[3] We found one exception: For records missing the year of graduation in the original contact information, non-contact rates averaged significantly lower than in the rest of the sampling frame. (Respondents from this group were asked their graduation dates, allowing us to use them in the analyses presented here.)

[4] The first question is ambiguous insofar as how part-time agency contracting jobs should be treated. It may be that respondents described part-time agency contracting jobs as a part-time job rather than an agency contracting job. We conducted a partial check for this problem by exploring what proportion of workers worked less than 35 hours a week in agency contracting and regular employment jobs. We found that 26% of agency contracting job spells were less than 35 hours per week, compared to only 5.5% of regular job spells. We conclude that most workers with part-time agency-contracting jobs described these as agency contracting

are assigned a 1 for *Independent Contractor* when the answer to the first question is temporary contractual basis and the answer to the second question is either full- or part-time. This results in two mutually exclusive variables reflecting the type of employment relationship. (Job spells identified as self-employment by the second question, and not temporary contractual basis on the first question, are excluded from the analysis.)

All job spells in the analyses are therefore categorized as either regular employment, independent contracting, or agency contracting. Examined at the respondent level, most individuals in the sample (87.3%) have no experience with either form of contracting, whereas 106 (5.5%) have experience with independent contracting, and 26 (1.3%) have experience with agency contracting. One (0.1%) has experience with both forms of contracting.

Working at home. For each job spell, respondents were asked a behavioral question about working at home. The wording of the question—"How much of your work for this job was/is done at your home? Would you say none, very little, some, most, or all?"—was adapted from a question in the National Study of the Changing Workforce (NSCW 2002). Most studies in the telecommuting literature have used a similar behavioral variable to capture the incidence and intensity of work performed at home rather than in the office (Gajendran and Harrison 2007).

We code the corresponding variable *WorkatHome* variable as a 1 if respondents report work at home with a frequency of "some" "most" or "all" of the time, and a 0 if they report working at home "none" or "very little" of the time. Working at home "some" of the time or more represents a significant involvement with telecommuting. In the telecommuting empirical literature, working half one's time or more at home (sometimes called "home-centered" or "high intensity" telecommuters) is associated with stronger work-life motivations, as well as more positive work-life outcomes including significant reduction in work-life conflict (Konradt and Schmook 2003; Gajendran and Harrison 2007).

Weekly work hours. For each job spell, respondents were asked about their total weekly work hours. We use the integer response values from that query for the variable *WeeklyHours.*

Ability to determine hours. For each job spell, respondents were asked, "Did/do you have the flexibility in this job to decide your work hours?" This question taps into perceptions of control over setting hours. This question was also adapted from a question used in the NSCW. We considered a similar dichotomous question included in the May 1997, 2001, and 2004 CPS Supplements ("Do you have flexible work hours that allow you to vary or make changes in the time you begin and end work?"), but favored the simpler wording of our question given space constraints and the fact that we would be asking the question several times for those with repeat job spells. Affirmative answers are coded 1 and negative answers coded 0 for the dichotomous dependent variable *SetHours.*

Workplace size. To capture the workplace size for each job spell, respondents were asked, "How many employees worked/work at your primary job site?" Our focus on the workplace follows the tradition of using establishment rather than organization as the locus of inquiry in worker surveys. As Osterman (1995) pointed out, the great advantage of this common approach is response accuracy; respondents are more likely to know the characteristics of their immediate workplace than those of a larger corporate entity. Asking about the workplace rather than the employer has an added advantage for our purposes because it avoids the problem of agency contractors reporting the size of their temporary help agency as their employer rather than the client workplace (this is an issue with basic CPS data; see Houseman and Polivka 2000). Workplace size and firm size are highly correlated, particularly at the upper end of the spectrum; small workplaces might be small units of larger organizations, but large workplaces are necessarily part of organizations

jobs rather than part-time jobs. However, it is possible that a few job spells were misclassified in this way.

of at least that size. In all analyses we use *Ln(Size)* for the logged value.

One concern with this measure is that it is derived from the worker's self-report. However, similar employee self-reports of workplace and firm size are used extensively in surveys such as the CPS, the Quarterly Employment Survey, and the NSCW (Hollister 2004; MacDermid et al. 2001); Brown and Medoff (1996) found self-reported size to be highly correlated (0.82) with corporate database records. We further validated our survey measure by correlating it with responses to questions about two job characteristics that are routinely linked to workplace size: access to employee benefits (Knoke 1996) and vertical layers (Marsden, Cook, and Kalleberg 1996). Access to four different benefits in the current job spell was correlated with log size (0.22 to 0.35, all $p<0.0001$) and reporting to a supervisor in the current job spell was similarly correlated with log size (0.35, $p<0.0001$). An additional concern is that the retrospective nature of this measure may introduce bias. Reviews of recall bias in retrospective surveys, though, find little evidence that numerical estimation for measures from more distant time periods is any less accurate than for more recent estimates (Bound et al. 2000).

Demographics. Workers may vary in their interest in jobs that accommodate work-life needs, and they may change their interest depending on career or life stage. We control for basic demographic factors including worker *Age*. Family structure is captured with five dummy variables: *Female single no children*, *Female spouse no children*, *Female spouse children*, *Male spouse no children*, *Male spouse children*; the omitted case is *Male single no children*. We also control for human capital characteristics using highest degree obtained (separate dummies are entered for *associate's*, *master's*, and *doctoral* degrees, and the omitted case is the bachelor's degree). The *Experience* variable is the respondent's total labor market experience corresponding to each job spell, defined as months transpired from the start of that respondent's first job spell to the start of the current job spell.

Technology industry. We control for whether a job spell occurred in the technology industry. Several studies have found that the availability of work-family benefits varies across industries (Goodstein 1994; Ingram and Simons 1995). We control for job spells based in the technology sector as opposed to other sectors. The variable *Technology Industry* is coded 1 for the technology sector, and 0 otherwise, using the open-ended response to a question asking about the industry of each job spell.

Technology application work. To capture a key feature of the nature of work, we employ a distinction often made between IT work involving the creation and development of software or hardware (creation work) and IT work involving the application of existing software and devices to solve particular needs (application work). This control also allows us to corroborate Evans, Barley, and Kunda's (2004: 26) interview finding that contractors who were software developers (creation) were most likely to make use of schedule flexibility, whereas those who were systems administrators (application) were least likely to do so. To code jobs as application work, we first asked three subject matter experts to hand code more than 400 job spells, each based on descriptions in a National Research Council report on the IT workforce (National Research Council 2001). Following Giorgetti and Sebastianti (2003), those codings became the basis for an automated text categorization scheme used to code the rest of the job spells. Examples of phrases associated with creator work include Software engineer and Programmer; those associates with applicator work include Network administrator and Systems analyst. The resulting dummy variable, *Tech. Application Work,* takes a value of 1 when the job spell involves application work.

Analytic Approach

To predict the dichotomous variable *WorkatHome* we use binary logistic regressions with robust error clustering on individuals, and a conditional logit model (sometimes called fixed-effects logistic regression; Allison 2005) for the fixed-effects specification. For *WeeklyHours* we use OLS regressions with robust errors as well as

fixed-effects OLS. For the dichotomous variable *SetHours,* we use logistic regressions with robust errors and a conditional logit model for fixed effects. We omit variables from the fixed-effects models that are uninformative or where cell sizes are too small. In the *WorkatHome* and *SetHours* regressions, we also enter *WeeklyHours* as an independent variable in order to control for the possibility that long work hours drive part of the variance in those outcomes.

For each dependent variable, we first estimate regular and fixed-effects models that include contracting type and controls. We then estimate regular models for each dependent variable that add workplace size and then add the interactions of workplace size with contracting types. These latter models, including workplace size, are run on a restricted sample that excludes job spells for which workplace size was reported as 1. Contractors who report workplace size of 1 are obviously reporting the size of their own contracting organizational entity rather than the size of a client's workplace. This exclusion removes the following (unweighted) numbers of job spells: 32 independent contracting, 2 agency contracting, and 42 regular employment.[5] An additional 474 job spells were missing usable workplace size information, reducing the usable job spells for the workplace size analyses to 4255. All models and analyses presented include nonresponse weights.

Who Are the Contractors?

Table 1 provides a descriptive portrait of contractors compared with regular employees. Here and elsewhere, results are presented for independent contractors and agency contractors separately. Contractors of both types are not significantly more or less likely to be female. Important demographic differences do exist between contracting job spells and regular employment job spells, however, including a lower likelihood of spouse/partner at home. Contractors of both types are more likely to be single men without children, and contractors of both types are much less likely to be married men. Agency contractors are less likely to have a Master's degree. Independent contractors have decidedly more experience at the start of the job spell and are more likely to have reported an involuntary separation in their last job.

Given some considerable differences in both human capital and demographic indicators, we sought to further address the potential for worker selection into contracting job spells by including a Heckman-style selection variable based on a first-stage model predicting the probability of a job spell being a contracting spell (see Appendix). Our first stage selection model includes basic human capital and demographic variables and *last job involuntary separation,* a variable that serves as an appropriate exclusion restriction in the selection model because it is significantly improves model fit in the first stage (change in $\chi^2 = 6.93$, $p<.01$) and is not correlated with the job characteristics that are our dependent variables. Kunda, Barley, and Evans (2002) found involuntary separations to be a common factor precipitating contracting among their interview informants. The *Selection Variable* in Tables 4 and 5 is the inverse Mill's ratio computed from the first stage model. We include the same selection variable in all our models of job characteristics.[6]

[5] We lack information about actual client/employer workplace size for these job spells. To assess the impact of this issue, we re-ran the models in Table 4 after imputing workplace ln(size) values to these 76 job spells using random values drawn from a distribution reflecting the actual distribution of workplace sizes in the overall sample (mean 5, S.D. 2.3). The results are similar to those presented in Table 4, except that the coefficients on the independent contracting* size interaction are smaller in magnitude across all three regressions; other coefficients are not substantively affected. For the first set of imputation runs, the independent contracting* size interaction is slightly smaller predicting working at home (−.227 instead of −.324; still $p<0.01$), smaller for weekly work hours (0.805 instead of 1.001; $p<.10$ instead of $p<.05$), and smaller for ability to decide hours (–.116 instead of –.175; $p<.10$ instead of $p<.05$). Subsequent runs produced similar coefficient values.

[6] The results are similar for parallel bivariate probit models run on the two dichotomous dependent variables. We show results for logistic models in Tables 4 and 5 to facilitate interpretation of effects. Although there is debate about when they are appropriate, two stage

Table 1. Comparison of Job Spells by Employment Relationship Type

	Regular employment		*Independent contracting*		*Agency contracting*	
Variable	*Mean*	*Std Dev*	*Mean*	*Std Dev*	*Mean*	*Std Dev*
Age	27.23	6.05	27.67	9.20	26.32	5.81
Female	0.18	0.39	0.20	0.40	0.18	0.39
Spouse/partner	0.68	0.47	0.46***	0.50	0.35***	0.48
No. of children aged 0–18	0.18	0.55	0.18	0.58	0.12	0.44
Female single no child	0.05	0.22	0.09*	0.28	0.08	0.27
Female spouse no child	0.12	0.32	0.09	0.29	0.08	0.27
Female spouse child	0.01	0.11	0.03	0.16	0.02	0.14
Male single no child	0.25	0.43	0.44***	0.50	0.55***	0.50
Male spouse no child	0.46	0.50	0.27***	0.45	0.20***	0.40
Male spouse child	0.09	0.29	0.07	0.26	0.06	0.24
White	0.82	0.39	0.77	0.42	0.75	0.44
Experience (months)	32.85	46.71	40.36*	57.84	36.06	54.53
Associates	0.03	0.17	0.02	0.14	0.06	0.24
Bachelors	0.78	0.42	0.82	0.39	0.84	0.37
Masters	0.19	0.39	0.16	0.37	0.10+	0.30
Doctorate	0.01	0.09	0.00	0.00	0.00	0.00
Technology industry	0.10	0.30	0.19**	0.39	0.00*	0.00
Tech. application work	0.35	0.48	0.38	0.49	0.63***	0.49
Involuntary separation in last job	0.08	0.28	0.17**	0.38	0.12	0.33
Ln(Workplace size)[a]	5.16	2.24	3.46**	2.76	4.64	2.35
n	4557		197		51	

[a]Excluding job spells where size=1 (lnsize = 0), means are 5.20, 4.23, and 4.93.

Notes: Statistical significance reported for mean differences of values for independent contracting relative to regular employment, and for agency contracting relative to regular employment. Weights used in all analyses.

+Statistically significant at the 0.10 level; *at the 0.05 level; **at the 0.01 level; ***at the 0.001 level.

Job Characteristics that Accommodate Work-Life Needs

Table 2 compares job spell characteristics related to work-life needs for regular employment spells and both types of contracting spells. Overall, 68% of all regular employment spells are associated with the ability to determine hours, compared with 67% for independent contracting spells and 44% for agency contracting spells. Those figures are comparable to the responses on the similar CPS item ("Do you have flexible work hours that allow you to vary or make changes in the time you begin and end work?"), for which the following reported "yes": 70% of computer software engineers and database administrators, 53% of computer programmers, and 64% of computer and information systems managers (authors' analysis of data from the CPS 2004 Work Schedules supplement; also see Golden 2001).

The frequency of working at home at least some of the time also varies by employment relationship. Twenty-two percent (22%) of regular employment spells are associated with working at home at least some of the time, compared with 33% of independent contracting spells and 4% of agency contracting spells. The raw working at home scale extends from 1= none of work done at home to 5 = all work done at home. We also report the distribution of each response by job spell type in Table 2. This break-down reveals that independent contractors are no less likely to report "none" compared with regular employees (53.5% versus 47.0%), but they are

Heckman-style selection methods appear to be valid for use with a variety of dependent variable functional forms (Heckman and Navarro-Lozano 2004: 39; Wilde 2000).

Table 2. Comparison of Job Spell Characteristics Related to Work-Life Balance, by Employment Relationship Type

Variable	*Regular employment*	*Independent contracting*	*Agency contracting*
How much of work done at home			
None	47.0%	53.5%	81.3%
Very little	30.7%	13.2%	14.9%
Some	18.9%	17.8%	3.8%
Most	1.9%	5.8%	0%
All	1.5%	9.7%	0%
At least some work done at home (0/1)	0.22	0.33***	0.04**
Mean of Weekly work hours	43.81	37.87***	38.52***
Standard Deviation of weekly work hours[a]	9.95	14.72***	8.21
Ability to decide work hours (0/1)	0.68	0.67	0.44**
N	4557	197	51

[a]Significance levels in this row reflect F-test for difference in sample variances.
Note: Weights used in all analyses.
[+]Statistically significant difference from the Regular Employment category at the 0.10 level; *at the 0.05 level; **at the 0.01 level; ***at the 0.001 level.

more likely to report "most" or "all" (15.5% versus 3.4%). Agency contractors, in contrast, are more likely than the other types to report "none" for how often they work from home (81.3%); none of them report that they work "most" or "all" of the time at home. The "none" responses are comparable to CPS May Supplement results for an item asking whether they work from home. Of those replying "never work at home," 57% were computer software engineers, 54% were database administrators, 59% were computer programmers, and 38% were computer and information systems managers (authors' analysis of CPS 2004 data).

Weekly work hours average significantly higher (43.8) for regular employees compared with both independent contractors (37.87) and agency contractors (38.52). We also note that the variance in hours for independent contractors is higher than the other two groups. Again these figures are comparable to CPS data on weekly work hours for the respondent's main job, which average 40.2 for those computer occupations listed above (authors' analysis of CPS 2004 data).

Before turning to the primary analyses, we verify that these job characteristics are indeed associated with work-life outcomes and other positive outcomes by using data from the last job spell reported in the survey. For that job (the current job), respondents answered additional questions including two items adapted from the NSCW work-life conflict scale: "In the past three months, how many times has your work at this job made you feel too tired to do non-work-related activities that needed your attention?" and "In the past three months, how many times have problems at this job made you irritable at home?" ($\alpha = 0.84$). They also reported general job satisfaction and intent to stay in that job. We ran regressions controlling for the same demographic, human capital, and work/workplace variables listed in Table 3. Results confirm that all three job characteristics are significantly associated with reduced work-family conflict ($p<.05$ or better). Working at home and the ability to decide hours are also both significantly associated with increased job satisfaction ($p<.05$ or better) and with a greater intention to stay in the job ($p<.05$ or better). These results suggest that the job characteristics do correlate as expected with the accommodation of workers' work-life needs.

Results

Are contracting jobs associated with characteristics that accommodate work-life needs? Table 3 presents the results of analyses predicting

frequency of working at home, weekly work hours, and the ability to set work hours. The results in Table 3 (Models 1, 3 and 5) indicate that independent contracting is associated with a doubling (1.892 times) of the odds of working at home at least some of the time ($p<.001$), a 5.7-hour decline in weekly work hours ($p<.001$), and no significant difference in the ability to set work hours. The pattern for agency contractors differs. Agency contracting jobs are associated with a four-fifths reduction (0.179) in the odds of working at home at least some of the time ($p<.05$), a 5.0-hour decline in weekly work hours ($p<.001$), and a 56% reduction (0.440) in the odds of having the ability to set work hours ($p<0.10$). Models 2, 4 and 6 report the results of parallel models with fixed effects for individual respondents. The results are similar, except that the effect of agency contracting on ability to decide hours is of greater magnitude but lesser significance ($p<.10$).

These results indicate striking differences for independent contracting and agency contracting. The results provide partial support for Hypothesis 1B, because independent contracting is positively associated with two of three job characteristics that accommodate work-life needs. We also find partial support for Hypothesis 1A, in that *agency* contracting is negatively associated with two of three job characteristics that accommodate work-life needs.

How do the differences between contracting and regular employment vary with workplace size? Table 4 reports the results of analyses that interact the type of employment relationship with workplace size. Models 1, 3 and 5 include the main effects of variables used in the interaction, and Models 2, 4 and 6 add the interaction terms. Across all three dependent variables, the effects of workplace size differ for independent contractors relative to regular employees (interactions $p<.05$ or better), and the addition of the size interactions significantly improves model fit. The overall pattern indicates that as workplace size increases, independent contractors become increasingly disadvantaged relative to regular employees in terms of job characteristics that accommodate work-life needs.

For regular employees, frequency of working at home tends to increase with workplace size, whereas for independent contractors those effects are greatly muted. In workplaces with 20 employees (lnsize = 3, 1 S.D. below the mean), independent contractors are associated with a 54.8% increase in the odds of working at home at least some of the time, relative to regular employees; in workplaces of 1000 (lnsize = 7, 1 S.D. above the mean), the effect reverses and independent contractors are associated with a 58.8% *decrease* in the odds of working at home at least some of the time, relative to regular employees. Weekly work hours increase modestly with workplace size for regular employees, but they increase much more for independent contractors. In workplaces with 20 employees, independent contractors average approximately 4.17 fewer hours per week than regular employees; in workplaces of 1000, however, independent contractors work the same number of hours (difference of 0.16 hours) as regular employees. The ability to decide work hours also increases with workplace size for employees, but again the effect reverses for independent contractors. In workplaces with 20 employees, the predicted odds are the same for independent contractors and regular employees to be able to decide their work hours (that probability is 68%); in workplaces with 1000 employees, the odds decrease by 50% that independent contractors will be able to decide their work hours relative to regular employees.

The pattern for agency contracting and workplace size is less pronounced. The only difference between regular employees and agency contractors that is considerably influenced by workplace size is the frequency of working at home ($p<.10$), and for that variable the workplace-size effects for agency contractors do not differ markedly from the workplace-size effects for independent contractors reported above. However, the number of agency contractors in the survey population is small enough to weaken statistical power for the agency * size interactions.

In sum, these findings concerning workplace size provide support for Hypothesis 2 for independent contractors but not for

Table 3. Impact of Employment Relationship Type on Working at Home, Weekly Work Hours, and Ability to Decide Work Hours

	Working at Home		*Weekly Work Hours*		*Ability to Decide Hours*	
Employment Relationship	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Indep. Contracting	0.683***	0.825**	−5.738***	−4.933***	−0.127	0.175
	(0.169)	(0.293)	(1.116)	(0.874)	(0.158)	(0.273)
Agency Contracting	−1.718*	−13.868	−4.975***	−3.831*	−0.822**	−1.560+
	(0.725)	(410.100)	(1.226)	(1.918)	(0.289)	(0.825)
Demographics						
Age	0.017**	0.173***	0.144***	0.070	0.004	0.092**
	(0.006)	(0.036)	(0.043)	(0.086)	(0.007)	(0.028)
Female single no child	0.092		0.952		0.031	
	(0.180)		(0.781)		(0.182)	
Female spouse no child	0.547**		−1.723+		0.333+	
	(0.179)		(0.928)		(0.190)	
Female spouse child	0.732*		−3.295		0.159	
	(0.311)		(2.235)		(0.413)	
Male spouse no child	0.375+		−0.552		0.570**	
	(0.203)		(1.041)		(0.202)	
Male spouse child	0.696***		0.467		0.514**	
	(0.187)		(0.991)		(0.196)	
Human capital			−0.204		−5.708**	
Experience	0.122***	0.219***	0.470***	0.853***	0.016	0.107*
	(0.022)	(0.055)	(0.095)	(0.138)	(0.019)	(0.015)
Associates	0.148		0.132		0.017	
	(0.218)		(1.241)		(0.214)	
Masters	0.045		−0.983*		0.258*	
	(0.093)		(0.475)		(0.102)	
Doctorate	2.097		−15.464*		6.577***	
	(1.673)		(7.675)		(1.673)	
Additional job spell controls						
Technology Industry	0.287**	0.530*	1.922***	1.936**	0.428**	0.362+
	(0.111)	(0.227)	(0.533)	(0.671)	(0.123)	(0.200)
Tech. application work	0.106	0.036	0.400	0.251	−0.318***	−0.045
	(0.074)	(0.136)	(0.334)	(0.405)	(0.068)	(0.124)
Weekly work hours	0.029***	0.007			−0.006+	−0.019
	(0.004)	(0.006)			(0.003)	(0.006)
Selection variable (λ)	0.367		−3.143*		1.036**	
	(0.336)		(1.552)		(0.328)	
Constant	−3.051***		33.736***		2.390***	
	(0.541)		(2.418)		(0.518)	
LL/R^2	4934.7	1029.6	0.050	0.606	−2998.6	−621.4
N (job spells)	4805	4285	4805	4285	4805	4285

continued

Table 3. Impact of Employment Relationship Type on Working at Home, Weekly Work Hours, and Ability to Decide Work Hours Continued

	Working at Home		*Weekly Work Hours*		*Ability to Decide Hours*	
Employment Relationship	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
N (respondents)	2348	2109	2348	2109	2348	2109
Weights?	Yes	Yes	Yes	Yes	Yes	Yes
Individual fixed effects?		Yes		Yes		Yes

Notes: Models 1 and 5 are logistic regressions with selection corrections, Models 2 and 6 are conditional logit regressions (approximating individual fixed effects; see Allison 2005), Model 3 is OLS with a selection correction, and Model 4 is OLS with individual fixed effects. Models 1, 3 and 5 include error clustering on individuals. All models include weights. Standard errors are in parentheses.
†Statistically significant at the 0.10 level; *at the 0.05 level; **at the 0.01 level; ***at the 0.001 level.

agency contractors. Hypothesis 2 predicted the deterioration of job characteristics for contractors relative to employees. The workplace size findings reveal that in large workplaces, the job characteristics for independent contractors do not better accommodate work-life needs. Instead, the generally positive finding above for independent contractors in the aggregate appears to be closely associated with jobs in smaller workplaces.

Do contractors have access to breaks between jobs that could accommodate work-life needs? Table 5 summarizes the results of simple comparisons between contracting and regular employment in the frequency of breaks following contracting, as well as the lengths of job spells and the odds that contracting jobs are followed by more contracting as opposed to a return to regular employment. In theory, contracting jobs could accommodate workers' needs for longer absences from work if breaks between job spells exist and workers can time these in a way that fits their needs. Independent contracting job spells average about two years (22 months), and agency contracting job spells average about one year (11 months). Hence relative to regular employment (average duration 50 months), contracting does present more potential opportunity for hiatus, providing support for Hypothesis 3, which predicted that contracting would be associated with longer breaks following job spells.

Breaks following job spells are also more common for contracting jobs than for regular employment jobs. Following regular employment job spells, breaks of one month or more occur 38% of the time. In contrast, following independent contracting they occur 58% of the time, and following agency contracting they occur 46% of the time. In fact, breaks of six months or more are not uncommon for independent contractors (29% of the time) and for agency contractors (21% of the time).

If breaks after contracting represented a positive way for workers to accommodate their work-life needs, we would anticipate observing a return to contracting after those breaks end. Instead, for most IT workers in our sample, contracting appears to be a relatively rare and short-term event in the course of their careers. Breaks after contracting jobs end are mostly followed by a return to regular employment rather than to more contracting. Overall, the rate of return to contracting is only 12.2% among independent contractors and 7.5% among agency contractors. For those taking at least a one-month break after contracting, the rate of return to contracting is somewhat higher at 17.2% for independent contractors (10% for agency contractors), but still only a small fraction of the total set of workers in that circumstance.

We also examined breaks by looking at the reasons given by respondents for ending

Table 4. Impact of Employment Relationship Type and Workplace Size on Working at Home, Weekly Work Hours, and Ability to Decide Work Hours

	Working at Home		*Weekly Work Hours*		*Ability to Decide Hours*	
Employment Relationship	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Indep. Contracting	0.114	1.433**	−2.909*	−7.174**	−0.249	0.522
	(0.219)	(0.439)	(1.249)	(2.610)	(0.180)	(0.382)
Agency Contracting	−1.072	3.052	−6.748***	−1.143	−0.675+	−0.958
	(0.736)	(2.060)	(1.786)	(5.115)	(0.368)	(0.907)
Workplace size						
Ln(Workplace Size)	0.037*	0.040*	0.659***	0.627***	0.027+	0.033*
	(0.018)	(0.018)	(0.083)	(0.084)	(0.016)	(0.016)
Ln(Size)* Indep. Cont.		−0.331**		1.001*		−0.175*
		(0.105)		(0.495)		(0.074)
Ln(Size)* Temp. Agency Emp.		−1.129+		−1.138		0.058
		(0.690)		(0.969)		(0.161)
Demographics						
Age	0.015*	0.016*	0.125**	0.125**	0.003	0.003
	(0.007)	(0.007)	(0.043)	(0.045)	(0.007)	(0.007)
Female single no child	0.087	0.083	0.011	0.014	−0.034	−0.036
	(0.199)	(0.199)	(0.823)	(0.823)	(0.203)	(0.204)
Female spouse no child	0.497*	0.495*	−2.735**	−2.698**	0.382+	0.381+
	(0.193)	(0.193)	(0.974)	(0.976)	(0.203)	(0.204)
Female spouse child	0.536	0.584+	−3.395+	−3.569+	0.147	0.181
	(0.355)	(0.356)	(2.117)	(2.129)	(0.505)	(0.509)
Male spouse no child	0.292	0.291	−1.446	−1.426	0.511*	0.512*
	(0.213)	(0.213)	(1.094)	(1.094)	(0.211)	(0.212)
Male spouse child	0.545**	0.525**	−0.086	−0.018	0.431*	0.422*
	(0.197)	(0.197)	(1.026)	(1.026)	(0.203)	(0.203)
Human capital						
Experience	0.114***	0.115***	0.611***	0.611***	0.014	0.014
	(0.023)	(0.023)	(0.097)	(0.098)	(0.020)	(0.020)
Associates	0.034	0.048	0.455	0.455	0.003	0.003
	(0.243)	(0.243)	(1.286)	(1.281)	(0.226)	(0.227)
Masters	0.046	0.045	−1.022*	−1.021*	0.272*	0.272*
	(0.099)	(0.099)	(0.470)	(0.471)	(0.108)	(0.108)
Doctorate	1.948	2.017	−23.054**	−22.760**	7.128***	7.135***
	(1.763)	(1.763)	(8.172)	(8.173)	(1.916)	(1.920)
Additional job spell controls						
Technology Industry	0.133+	0.135+	1.925***	1.967***	0.430**	0.423**
	(0.078)	(0.079)	(0.533)	(0.532)	(0.129)	(0.129)
Tech. application work	0.034***	0.035***	0.212	0.185	–0.272***	–0.269***
	(0.004)	(0.004)	(0.350)	(0.350)	(0.072)	(0.072)
Weekly work hours	0.285	0.301			−0.005	−0.005
	(0.352)	(0.352)			(0.004)	(0.004)
Selection variable (λ)	−3.348***	−3.437***	−4.474***	−4.417**	0.981**	0.983**
	(0.584)	(0.585)	(1.663)	(1.664)	(0.342)	(0.344)

continued

Table 4. Impact of Employment Relationship Type and Workplace Size on Working at Home, Weekly Work Hours, and Ability to Decide Work Hours Continued

	Working at Home		*Weekly Work Hours*		*Ability to Decide Hours*	
Employment Relationship	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Constant	0.133+	0.135+	29.040***	29.309***	2.185***	2.137***
	(0.078)	(0.079)	(2.666)	(2.673)	(0.548)	(0.550)
LL/R2	4353.2	4337.1	0.073	0.079	−2652.4	−2649.2
χ^2/F for adding interactions		32.2***		13.8***		6.4*
N (job spells)	4255	4255	4255	4255	4255	4255
N (respondents)	2192	2192	2192	2192	2192	2192
Weights	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Models 1, 2, 5 and 6 use binary logistic regression, and Models 3 and 4 use OLS. All models include error clustering on individual respondents and weights. $\chi 2$ statistics are given for improvement in goodness of fit for Model 2 over Model 1, and for Model 6 over Model 5. F-statistics are given for improvement in goodness of fit for Model 4 over Model 3 (numerator degrees of freedom 2, denominator degrees of freedom 4235). Standard errors are in parentheses.
+Statistically significant at the 0.10 level; *at the 0.05 level; **at the 0.01 level; ***at the 0.001 level.

the contracting jobs that preceded those breaks.[7] Researchers sometimes make a distinction between breaks that are voluntary vs. those that are non-voluntary. Our data suggest workers rarely have control over the ending of contracting jobs that precede breaks. Of 55 independent contracting jobs followed by a break of 1 month or more with reasons given, the most common answer is some form of "the contract ended" (44/55, 80%), which we interpret as a transition outside of the worker's control. Some evidence of voluntary termination is indicated in the remaining reasons, which reference dissatisfaction with the job or the need to relocate. For independent contracting job spells *not* followed by a break, "the contract ended" reasons are given for a smaller fraction (28/62, 45%), though a substantial number report reasons that suggest voluntary exits, particularly going to a "better job" that almost always precedes a return to regular employment (22/62, 35%). In no case was a reason for ending a contracting job related to leisure. The two times that work-life responsibilities were specifically mentioned by respondents who had been in contracting job spells, those individuals returned to regular employment in their next job spell without any measurable break between spells. (The absolute number of agency contracting jobs followed by breaks is too small to analyze in a parallel fashion). These results do not support Hypothesis 4, which predicted that reasons for breaks after contracting jobs would relate to accommodation of work-life needs.

In sum, our evidence on extended breaks for contractors suggests that they are relatively common but not necessarily timed to the needs of workers. The fact that voluntary exits from contracting are much less commonly cited when workers transition to a break than when they transition directly to another job suggests that the breaks

[7] Barley and Kunda (2004: 233–235) found that some contractors attempted to plan leisure activities for their downtime. We examined the timing of contracting breaks to see whether they were more likely to occur in the summer months. Breaks of one month or more between contracting jobs were more common from June to August, but completed contracting job spells were more likely to end during that period even when not followed by breaks, and the timing is likely to be influenced by fiscal year endings that occur most often in June. In fact, transitions from regular employment to breaks of one month or more were also more likely during summer months (excluding jobs ending prior to further education). We did not find differences to be statistically significant.

Table 5. Job Spell Duration, Breaks Between Job Spells, and Contiguous Contracting, by Employment Relationship Type

Variable	*Regular employment*	*Independent contracting*	*Agency contracting*
Job spell duration (months)[a]	49.95	21.76***	10.85***
Prob. of next job in contracting or agency employment	0.018	0.122***	0.075*
Breaks after job ending			
(1) no break	62%	42%	54%
(2) break of 1 month	13%	12%	17%
(3) break of 2–5 months	10%	17%	8%
(4) break of 6[+] months	15%	29%	21%
n	4557	197	51
n for breaks	2773	118	40

[a]Includes job spells ongoing at the time of the survey.

Notes: Weights used in all analyses. N for breaks excludes last job spell, as well as job spells in which the respondent listed a reason for leaving the job to be returning for additional education.

[+]Statistically significant difference from the Regular Employment category at the 0.10 level; *at the 0.05 level; **at the 0.01 level; ***at the 0.001 level.

themselves are often not welcomed. This evidence is consistent with Barley and Kunda's (2004) finding that contractors usually do not embrace the downtime they experience, in part because it means lost income. That contrasts with employer-provided paid vacation and sick time, and even with the government-mandated Family & Medical Leave Act (FMLA) breaks that are uncompensated but promise employees the ability to return to paid work afterward.

Discussion and Conclusion

This research contributes empirical and conceptual insights to an ongoing debate about the use of contracting and contingent employment by employers. Using job-spell data on high-skill IT workers, we find that independent contracting is associated with shorter work hours and greater odds of working from home rather than from the office. However, independent contracting is not associated with greater odds of deciding one's own work hours. We also find that agency contracting follows a different pattern, consistent with a need to view agency contracting separately from independent contracting. Breaks between jobs are relatively frequent among those who engage in contracting, though there is little evidence in our study that contractors are able to influence the timing of those breaks or to plan the breaks in order to fulfill needs outside of work. Taken together, these findings suggest mixed support for the notion that contracting provides workers with job characteristics that accommodate work-life needs.

One of our most revealing findings comes from examining the relationship between workplace size and contracting. Specifically, we find that the beneficial impact of independent contracting on job characteristics is confined to smaller workplaces. In workplaces with 1000 or more employees, independent contracting is associated with *lower* odds of working at home, *lower* odds of being able to decide work hours, and work hours that are no different in comparison to those of regular employees in similarly sized workplaces. At the same time, regular employees in large workplaces are themselves better off than their counterparts in smaller workplaces, being more likely to be able to decide their own work hours and more likely to work at home. These findings related to size

thus indicate that although large organizations provide broadly superior jobs to their employees, contractors in those same organizations tend to lack access to such "benefits of membership." The way large firms approach their regular employees reflects the need for a stable workforce with skills and knowledge that are specific to that firm (Doeringer and Piore 1970). This leads larger firms to engage in a range of employment practices that promote longer-term employee relationships, such as higher levels of pay, benefits, and training (Kalleberg et al. 1996; Barron et al. 1987; Villemez and Bridges 1988; Hu 2003). If accommodating work-life needs helps organizations retain employees, then large firms may invest more in employment policies, job structures, and managerial practices that accommodate those needs. Such investments are not extended to their contractors.

Our findings also underscore differences between agency contracting and independent contracting. Overall, agency contracting is associated with lower odds of being able to decide work hours and to work at home—the opposite of independent contracting. One way to interpret this is that staffing agencies buffer client firms against concerns with misclassification by serving as the employer of record (Barley, and Kunda 2004; Stone 2006)—meaning that firms can exert more direct control over work schedules and locations without the same legal concerns. Differences in the nature of agency contracting work itself may also affect the job characteristics associated with it. We found that relative to regular employment, agency contracting more often took place in industries outside the technology industry and more often involved IT application work rather than software or hardware creation; differences for independent contracting were less pronounced.

Though our study focused on high-skill IT workers, the findings also relate to a wider literature on alternative or non-standard work arrangements in the general population of workers. In this literature, contracting has been found to be associated generally with lower pay and fewer benefits (Kalleberg, Reskin, and Hudson 2000; Houseman 2001; but see Prottas and Thompson 2006). In such general-population studies, however, contracting tends to be represented mostly by workers from lower-skill occupations. The impact of contracting on technical and professional workers clearly deserves separate treatment (Hundley 2001 makes a similar argument for self-employment). Our research design focusing on IT workers provides valuable insight because it reduces the correlation of contracting and worker outcomes due simply to basic occupational differences.

Future work on high-skill contracting can expand on these findings in several ways. First, research should explore the extent to which the job characteristics examined here are trade-offs for wages, job content, or the ability to gain new skills and experience (O'Mahony and Bechky 2006), and how these trade-offs affect workers' decisions to enter contracting (Marler and Milkovich 2000). Second, future work should gather direct measures of work-life outcomes and more evidence on why a given job is associated with particular characteristics. For example, we lack information on whether the decision to work at home is influenced by corporate policy vs. the work-life needs of workers (even if workers gain work-life balance as a result). Third, our analysis of how workers use extended breaks is also limited to interpreting responses about why the preceding job ended. In general, our study design has the advantage of providing representative and comparable information about high-skill contracting and regular employment, but this comes at a cost in terms of depth and richness of the information conveyed for each job spell captured.

Overall, our findings contribute to a broad policy debate about what contracting provides to workers and therefore how the spread of contracting might change worker experiences (Carre et al. 2000; Cappelli 2008). Whether high-skill contracting jobs pay more or less than regular employment remains unclear (Belman and Golden 2000; Spalter-Roth et al. 1997: 36–8), though contracting certainly involves less job security

and provides fewer legal protections (Stone 2006). Our research offers some evidence that high-skill contracting jobs are on average associated with more favorable job characteristics relative to regular employment. At the same time, jobs associated with the *best* characteristics for accommodating work-life needs are found in a context that is familiar to industrial relations scholars: regular employment in large firms. Contracting in those large firms does not compare favorably to regular employment in them. Hence if large firms shift more high-skill jobs from regular employment to contracting, our findings indicate that one result will be more workers who are challenged to meet their work-life needs. For government policies aimed at supporting work-life needs, this suggests more emphasis in the future on decoupling policy design from regular employment (Barker and Christensen 1998; Kochan 2005; Bidwell and Briscoe 2009).

Appendix
Sample Selection Model for Whether Job Spell is Contingent (Either Independent Contracting or Temporary Agency Employment) vs. Regular Employment

	Model 1
Age	−0.002
	(0.006)
Female single no child	−0.124
	(0.130)
Female spouse no child	−0.396***
	(0.109)
Female spouse child	−0.035
	(0.256)
Male spouse no child	−0.554***
	(0.074)
Male spouse child	−0.423***
	(0.129)
Experience (months)	0.002
	(0.002)
Experience (months) squared	0.000
	(0.000)
Associates	−0.071
	(0.202)
Masters	−0.057
	(0.086)
Doctorate	−4.843
	(4197.8)
First job after ed. (dummy)	0.084
	(0.103)
Last job involuntary separation	0.297*
	(0.119)
Intercept	−1.358***
	(0.182)
n	4805
Events	238
Log Likelihood	−919.442
Weights	Y

Notes: Probit model with error clustering on individual respondents. Inclusion of *Last job involuntary separation* significantly improves model fit ($\chi 2 = 6.93$, $p<.01$). +Statistically significant at the 0.10 level; *at the 0.05 level; **at the 0.01 level; ***at the 0.001 level.

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