

Alternative Work Arrangements*

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Abstract

Alternative work arrangements, defined both by working conditions and by workers' relationship to their employers, are heterogeneous and common in the U.S. This article reviews the literature on workers' preferences over these arrangements, inputs to firms' decision to offer them, and the impact of regulation. It also highlights several descriptive facts. Work arrangements have been relatively stable over the past 20 years, work conditions vary substantially with education, and jobs with schedule or location flexibility are less family-friendly on average. This last fact helps explain why women are not more likely to have schedule or location flexibility and seem to largely reduce hours to get more family-friendly arrangements.

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In defining jobs, firms make many decisions over how to organize production. They choose, for example, whether to hire workers directly or outsource hiring, whether to pay workers a salary or per hour, how many hours per week to require, and how much discretion workers have over when and where they can work. These decisions depend in part on firm production costs which vary with job tasks. For example, it may be costlier for firms to allow cashiers to choose their schedules from day-to-day than CEOs but easier to allow cashiers to work part-time. Additionally, workers have preferences over these arrangements, which may vary with characteristics like gender and children. Sorting on these dimensions of heterogeneity can lead workers with different skills and preferences to experience very different production processes. Regulation may also differentially change the costs of work arrangements and influence their provision. For example, overtime laws increase the cost of long hours, while mandated benefits may make contracting relatively cheaper.

Historically, there have been many changes to work arrangements. During the Industrial Revolution, production moved from individual craftsman to assembly lines, increasing the return to set schedules and the cost of working from home. The repeal of blue laws that restricted economic activity on Sundays led to an increase in weekend work. When married women entered the labor market in large numbers, the demand for part-time work increased. Arrangements such as work hours and temporary contracts vary substantially by country.

Our focus in this review is the prevalence, trend, and determinants of alternative work arrangements in the U.S. over the last few decades. In this period there have been significant technological and organizational changes that have potentially influenced the structure of work. The internet and IT advances changed the costs of offering work arrangements, making it easier for employers to allow workers to work remotely (a la Oettinger, 2011) and to provide workers with flexible schedules or schedule workers on-demand (Lambert and Henly, 2012). The advent of online platforms has allowed firms to contract on specific tasks for an increasing number of activities. Given these fundamental changes over the last several decades, we assess the extent to which working conditions have changed. A reasonable question to ask is whether the “traditional job” is a thing of the past.

A traditional job, as defined by Abraham et al. (2018), pays a wage or a salary, often has an implicit or explicit contract for a continuing employment relationship, has a predictable work schedule, predictable earnings, and work supervised by the firm paying the salary. For the purpose of this article, we define alternative work arrangements as nontraditional jobs in one or more of these dimensions. An alternative work arrangement could involve a worker hired by a temporary employment agency, an independent contractor with multiple clients, an independent contractor with a single client, or a W-2 worker working from home

or with a flexible or irregular schedule. We also consider the part-time/full-time dimension, since this is an important job characteristic for workers seeking flexibility. Our definition of alternative work arrangements presents some challenges for a single review, due to its heterogeneous nature. As Goldin (2014) notes, “workplace flexibility is a complicated, multidimensional concept.” However, one of our objectives is to characterize and analyze the structure of jobs which, for completeness, requires an examination of a diverse set of practices.

There are a number of reasons why alternative work arrangements are of interest to economists and policymakers. Some arrangements, such as flexible scheduling, telework, and part-time schedules, are often described as ways to improve work-life balance, and perhaps reduce gender disparities in wages and labor force participation. However, irregular scheduling, whereby workers do not control their schedules, or jobs with long hours may have the opposite effect in addition to negative health consequences (Lamberg, 2004). Temporary and gig jobs may be used as stepping-stones to more stable jobs, as means to smooth consumption, or as substitutes for more stable employment.¹ The use of independent contractors and outsourcing allows firms to focus on their core businesses but may also have implications for individuals’ wages and fringe benefits. Sub-contracting can be used to circumvent labor standards. Due to imperfect competition or other market failures, workers may not be compensated for adverse working conditions absent regulation or collective bargaining.

We begin by describing the prevalence of alternative work arrangements. We document that the majority of today’s jobs have some nontraditional feature, and more educated workers are more likely to have flexible jobs. This gradient appears mostly due to job characteristics rather than worker preferences and is related to, but not entirely explained by, differences in rates of salaried versus hourly work. While flexibility in work schedule and location have often been touted as a means of achieving work-life balance, we do not find evidence that these practices lead to reductions in job stress or family life interruptions. In fact, the opposite is generally true. Workers who report more flexibility tend to also have worse outcomes in these dimensions, as well as higher shares of long work days and late night work. Perhaps surprisingly given the emphasis of the benefits of flexible arrangements on work-life balance, there is no evidence that women are more likely to be in jobs with more scheduling or work location flexibility. The ability to work part-time appears to be one of the primary job characteristics that workers, especially women, use to achieve work-life balance.

We go on to ask whether dramatic shifts in firm organization, technology, and markets have coincided with changes in the nature of work. We observe from the literature and data that, by and large, the nature

¹Throughout this article, we use “gig jobs” to refer broadly to independent contractor and freelance work. “Electronically-mediated gig employment,” which refers to work on platforms like Uber or Upwork, is a type of gig employment.

of work has not changed dramatically in the last 20 years. The rates of flexible schedule jobs and telecommuting have exhibited only moderate growth. The number of electronically-mediated gig jobs has grown substantially, but these jobs remain a very small share of overall employment, and independent contracting and self-employment have grown, at most, modestly. While our broad definition of alternative work arrangements represent a large share of the U.S. labor market, the traditional job is still very much a relevant feature of the labor market, and there is little evidence that it is on a substantial decline.

Finally, we discuss alternative work arrangements in terms of how these arrangements are valued by workers, how they are determined on the firm side, and the role of regulation. We highlight several factors constraining the growth in gig work, flexible scheduling, and telework. Gig work (including independent contracting and freelancing) as a primary form of employment is likely held back by widely held preferences against irregular schedules and uncertain earnings. The primary benefits of electronically-mediated gig work are its potential to smooth fluctuations in earnings and to enable moonlighting. Regulatory pressure to reclassify independent contractors as regular employees may also limit future growth in these types of alternative arrangements. Temporary staffing has not grown, possibly because it primarily serves to smooth employment around temporary vacancies or meet transitory demand shocks, needs that may not have changed much over time. Flexible work practices may also be constrained by high marginal costs of implementation for two reasons. First, implementing these practices is infeasible in many jobs. Second, team production and coordination may require workers to be in proximity to each other. Finally, we note that the literature suggests that there is potential for work hours to explain gender wage and employment gaps, and for outsourcing to account for some of the change in the wage structure.

1 Setting the Stage: Prevalence and Trends

In this section, we provide descriptive statistics on the prevalence and trends of alternative work arrangements and discuss working conditions more broadly. We use data from the General Social Survey (GSS), the Current Population Survey Work Schedules Supplement (CPS WSS), the American Time Use Survey (ATUS), the American Community Survey (ACS), and the Understanding American Study (UAS), all of which ask about workplace attributes. Measuring alternative work arrangements presents a number of challenges. In most surveys, questions on work arrangements are not asked consistently, and the wording of each question often changes over time. Additionally, it is not always clear how to interpret the responses to some questions. For example, if someone reports working at home often, do we consider this to be a measure of work flexibility, or an indicator that they brought home work that they could not complete at

the office? Measuring independent contracting and self-employment presents another set of challenges, with differences in prevalence depending on whether survey data or tax records are used. These issues are discussed below.

1.1 Measuring “traditional jobs”

We begin by measuring the prevalence of traditional jobs in the labor market, attempting to reproduce the Abraham et al. (2018) definition described in the introduction. We use the 2014 GSS Quality of Worklife Survey (QWS) which asks about contingent work, self-employment, working from home, and scheduling flexibility.² We define a traditional job as having a number of characteristics: not self-employed, full-time, an employment relationship that is regular with the expectation of permanence, where a worker works from home less than once per week, in which a worker cannot change her schedule often, and the where the worker does not have irregular shifts or on-call work. By this definition, only 38 percent of 2014 workers between the ages of 18 and 65 had traditional jobs. Clearly, a traditional job, in the strictest sense, is not the norm in the U.S. labor market.

The rate of nontraditional jobs declines somewhat if we loosen the definition of traditional jobs. Keeping the previous criteria but allowing for part-time employment, 43 percent of jobs are traditional. We might still be overestimating the rate of nontraditional jobs since respondents who report working from home often may simply be taking extra work home. In the QWS, 26 percent of respondents report working from home often. However, only 47 percent of these workers report having a formal work-from-home arrangement; the rest were taking work home.³ Using a looser description that only counts workers with a formal arrangement as working from home, the rate of traditional jobs could be as high as 55 percent. Using any of these definitions, traditional jobs are hardly the norm.

Job characteristics in nontraditional jobs vary quite a bit. Using the strict definition of traditional jobs in the QWS (where part-time workers and those working from home without formal arrangements are non-traditional), 11.3 percent workers are self-employed, 23 percent are part-time, 50 percent can change their work schedule often, 32 percent work from home often, 3.5 percent are on call, 17 percent have irregular shifts, and 1.3 percent are temporary workers.

Working conditions are highly related to whether a job is salaried or paid hourly. Jobs with flexible schedules or work locations are much more likely to be salaried: 42 percent of flexible-schedule jobs are salaried relative to 27 percent of non-flexible schedule jobs. Similarly, 56 percent of jobs with at least

²Although the CPS Contingent Worker Supplement is commonly utilized, we omit it from this exercise because the survey does not ask about working from home or schedule flexibility.

³The rate of formal work-from-home arrangements comes from the UAS as this distinction is not made in the GSS.,

weekly work from home are salaried relative to 24 percent of other jobs. At the same time, jobs with flexible arrangements are more likely to be temporary arrangements (working as an independent contractor or temp worker). Of workers with flexible schedules, only 64 percent are in a regular and permanent employment relationship relative to 88 percent of other workers, while among those who work from home at least weekly, only 69 percent are regular employees relative to 85 percent of other workers.⁴ These statistics suggest that workers in flexible arrangements are a combination of workers with unstable employment and more conventional salaried workers who have control over their schedules and location of work.

1.2 The education gradient in alternative work arrangements

We now turn to the relationship of alternative work arrangements with education. We regress different measures of work arrangements on an indicator for college completion, some college, female, and a quadratic in age. Tables 1 and 2 report the estimates from this regression for the education and gender dummies. We use three datasets as outcomes differ across surveys: the GSS for the period 2012-2018, the 2011 ATUS Leave Module, and questions from a module we developed in the 2016 UAS.

In Table 1 the general pattern is that more educated workers are substantially more likely to have flexible arrangements. Workers with a college degree or more have a 13 percentage point higher probability of having a flexible schedule than do workers with a high school degree or less (column 1). This represents a 40 percent difference from the mean of 32 percent. We also see large differences by education in whether the worker works from home often. College graduates have a 28 percentage point higher rate of home work than do workers with at most a high school degree, relative to a mean of 26 percent (column 2).⁵ A similar pattern holds for whether the worker has a formal arrangement to work from home (column 3), and a regular and permanent job (column 4).⁶ There is no detectable relationship of education with self-employment (Table 1, column 5) or with part-time work (Table 2, column 2). Part of the education difference in flexibility is explained by differential rates of salaried versus hourly work as the rate of salaried workers is substantially higher among college graduates. However, the education gradient in flexibility holds after controlling for pay type. In terms of negative attributes, there is an insignificant educational gradient in whether the worker has an irregular, on-call or split shift (column 7), but more educated workers are much more likely to know their schedule at least two weeks in advance (column 8).⁷

⁴All differences are significant at the 0.001 level.

⁵These relationships are robust to controlling for marital status and children in the household.

⁶A regular and permanent job is defined as a worker who is not an independent contractor, does not do on-call work, is not paid by a temporary agency, and does not work for a contractor that provides workers or services.

⁷This estimate may overstate the education gap in workers knowing their schedule two weeks in advance. This question counts workers with flexible schedules as knowing their schedules even though they might have to adjust their work hours last minute if

One interpretation of these education differences in flexibility is that scheduling and location flexibility are non-pecuniary, unmeasured benefits of additional education, something missed by standard estimates of the returns to education. An alternative interpretation is that these characteristics are a component of jobs that emphasize worker output rather than worker inputs and that jobs emphasizing worker output may have other, possibly less-attractive, attributes.⁸ A number of facts support this second interpretation:

(1) Salaried jobs require more educational attainment and have more flexibility but also longer hours.⁹

(2) Workers with more educational attainment have more days of overtime work (Table 2, column 4) but have a lower probability of having their employer require overtime work (Table 2, column 5), consistent with higher-skilled workers having more demanding workplaces that emphasize their output over their inputs.

(3) Workers with flexible schedules and who work at home more often self-report that they have more autonomy in how they do their work. Specifically, in the GSS they are significantly more likely to respond that they have “a lot of freedom to do [their] jobs” and are significantly less likely to work as part of a team (Table 3, columns 4 and 5).

(4) Workers in jobs with more schedule and location flexibility do not have better measures of work-life balance. There is a very strong positive relationship between working from home often and whether the job is stressful, whether it interferes with family life, the probability of working late hours, and days of work that have extra hours (Table 3). There is a positive but statistically weak relationship between flexible schedule arrangements and job stress and job encroachment on family life, and a positive, precisely estimated relationship between flexible scheduling and working late hours.¹⁰

If workers with more educational attainment have flexibility over the time and location of work, the converse is that less educated workers tend to have limited control and are subject to employer demands over their time. They are more likely to be required to work overtime, and they have less advance notice about their schedules (Table 1, column 8).

additional work comes in.

⁸Tan 2017 develops a model where firms can choose between giving workers freedom to develop their own production methods and tightly monitoring their actions. Freedom can be efficient because it eliminates the ratchet effect of innovating – workers benefit from their innovations since firms do not raise future performance requirements on the workers. Firms decide whether to give workers freedom trading-off the productivity gains from innovation in the production process under freedom with efficiency losses due to asymmetric information with less monitoring.

⁹Salaried workers work approximately 5 more hours per week than hourly workers, after controlling for education, gender and age in the 2011 CPS, and 4 more hours after controlling for two-digit industry and occupation. Salaried workers have a 15 percentage point higher probability of working more than 45 hours per week (the overall fraction of workers working more than 45 hours is 0.21). In the 2014 GSS, salaried workers have a 9 percentage point higher rate of having a flexible schedule than hourly workers, controlling for education, age and gender (p-value = 0.004).

¹⁰Blair-Loy (2009) provides an ethnographic account of how flexibility can interfere with personal time in the case of stock brokers. The brokers she interviewed who were in firms that granted them more scheduling flexibility relayed that they had more work-family conflict than brokers with traditional schedules. The latter reported that rigid schedules helped provide a buffer from clients during the off-work hours.

The positive education gradient in flexibility and demands of the job may be more intuitive when we consider workers' occupations. For example, out of the 38 two-digit occupations in the GSS, the category "chief executives, senior officials, and legislators" is tied for the most stressful occupation and is second in terms of job interfering with family. On the other hand, it is relatively flexible, with roughly half of workers saying they work from home more than once per week and almost 40 percent of workers reporting schedule flexibility. On the other side of the spectrum, the category of "food preparation assistants" is one of the least likely occupations to interfere with family life but has very low rates of home work and flexible scheduling.

The relationships discussed suggest that differences in job characteristics can be thought of as components of different production processes for higher skill work rather than different fringe benefits. It is not that higher-educated workers demand more flexibility, but that flexibility is cheaper for employers to provide in higher-skilled jobs. While we discuss workers' preferences for flexibility more in Section 2.1, the literature does not find a strong relationship between educational attainment and a desire for flexibility. Mas and Pallais (2017) find that more- and less-educated workers are willing to give up the same fraction of earnings for different types of flexibility.

One proxy for the cost of offering telecommuting is the fraction of work employees claim they could feasibly do from home (regardless of where they do it). We surveyed respondents in the UAS on this job characteristic and, consistent with the idea that offering flexibility to more-educated workers is cheaper, college graduates report that 41 percent of their jobs could be feasibly completed from home, relative to only 14 percent for workers with a high school degree or less. Controlling flexibly for the fraction of the job that could be feasibly completed from home decreases the college gradient in working from home by more than half.

This interpretation of flexibility may help clarify the consistent finding in the literature on alternative work arrangements that non-wage job attributes are often not correlated with wages in the predicted direction from a compensating differentials model. In the cross-section, Mas and Pallais (2017), Maestas et al. (2018), He et al. (2019) find that jobs with more attractive attributes have higher wages, even when controlling for a rich set of attributes.¹¹ For example, Mas and Pallais (2017) find no evidence of a wage penalty for working from home or having a flexible schedule, which suggests that the compensating differential that would be predicted by this model if these were positive amenities doesn't exist. The lack of a penalty may reflect that these jobs are, on average, held by higher-skilled workers in observable and unobservable dimensions, or that employers can offer a more attractive job by combining wage and non-wage amenities, as in Hwang et al. (1998). It may also reflect the fact that more flexible jobs come with other negative amenities like

¹¹This is a similar issue encountered with many non-experimental studies of compensating differentials (e.g., Brown, 1980).

stress and interference with family life.

1.3 Trends in alternative work arrangements

We now turn to discussing trends in work arrangements over time, looking at both worker-firm relationships and flexibility measures. Our reading of the research on the worker-firm relationship is that by and large there have not been substantial changes in the rate of non-standard work arrangements in terms of independent contracting, self-employment or electronically-mediated gig work.

The traditional literature on alternative work arrangements focused largely on contingent work, on-call workers, contract firm employees, and the self-employed (Polivka, 1996).¹² The incidences of these different forms of alternative arrangements have been tracked by the Bureau of Labor Statistics (BLS) Contingent Workers Supplement (CWS) to the CPS since 1995 and the GSS QWS since 2002. The rates of these alternative work arrangements have been relatively stable. In the CWS, the rate of independent contractors, on-call workers, temporary help service workers, and contract firm employees have remained at approximately 7 percent, 1.7 percent, 1 percent, and 0.5 percent respectively (Abraham et al., 2018).

Measurement has been a focus of this literature. Abraham et al. (2018) note that there is a discrepancy between the number and growth of workers reporting self-employment in the CPS and workers reporting self-employment income in tax records. Between 1996 and 2016 self-employment rates were relatively stable in the CPS, in the 5-8 percent range depending whether self-employment is defined in relation to all jobs, the longest job last year, or the main job last week. If anything, there is a small downward trend in this rate over the period. Reports from IRS Schedule SE, Self-Employment Tax combined with Schedule C income, which is required of tax filers with gross non-farm self-employment income earned as an unincorporated sole proprietor, can be used to calculate self-employment rates in the administrative data. These rates are higher in levels and growth, going from 9.5 percent in 1996 to 11.3 percent in 2012. There was a similar increase in the filing of 1099-MISC forms, which are used to report payments to non-employee individuals.¹³ Jackson et al. (2017) document that the increase in self-employment rates in the administrative data is driven by an increase in individual contractors (people with little or no business deductions) rather than small businesses.

Collins et al. (2019) use tax data to identify online platform workers among workers reporting 1099s. The share of these workers was virtually zero prior to 2013 and grew to approximately 1 percent of the

¹²The BLS defines contingent workers as “persons who do not expect their jobs to last or who report that their jobs are temporary.” These are often non-employee relationships based on the completion of projects or tasks. Independent contractors fall in this category.

¹³Abraham et al. [2018] recommend probing more deeply into non-employee activities in household surveys and more linking of survey and administrative data.

tax workforce by 2016. Using a sample of 1 million Chase customers from 2016, Farrell and Greig (2016) estimate that 0.4 percent of employed adults and 0.7 percent on non-employed adults had received some income from online labor platforms. They also document that growth of participants slowed after 2015, possibly because the labor market improved and workers had better outside options. Both Collins et al. (2019) and Farrell and Greig (2016) find that online platform work rarely serves as a sizable source of income for individuals. However, this sector is changing rapidly. Since it is difficult to get statistics in real time, even the best statistics are a couple of years old.

A phenomenon related to contingent work and other nonstandard employment situations is domestic outsourcing. Weil (2014) has argued that the reliance on outsourcing, contractors, and temporary workers, particularly for non-core activities, has led to lower pay and worse working conditions. Bernhardt et al. (2016) note that in some industries, like call centers, outsourced jobs are more likely to be nonstandard, though an outsourced job can also be traditional. There is limited empirical evidence on domestic outsourcing trends due to data limitations. Measuring the extent of outsourcing is complicated because it requires measuring business-to-business transactions (Bernhardt et al., 2016).¹⁴ The evidence we have from specific occupations and industries suggests that domestic outsourcing is widespread and has grown (Dey et al., 2010). Handwerker (2015) uses data from the BLS Occupational Employment Statistics to construct an economy-wide measure of outsourcing by measuring the occupation employment concentration within employers. The basic idea is that outsourced jobs are likely to be in firms that offer a single service, such as cleaning. Handwerker (2015) finds that from 1999 to 2015 there was a moderate increase in occupational concentration in firms but a large increase in concentration for workers in the lowest-paid quintile of occupations. Increases in concentration were more pronounced in less unionized states.

Within traditional employment relationships, the prevalence of working from home, flexible scheduling, and having an irregular schedule set by an employer have not changed dramatically over the last 15-20 years. Figure 1 shows the fraction of non-self-employed workers who self-report working from home using different datasets and different work-from-home definitions.¹⁵ Despite the difference in levels of home work under the different definitions, the series show a similar pattern: stability until around 2005 and a slight rise after that. These datasets all show a small, significant increase in the probability of working from home of 2 to 3 percentage points over the 2005 to 2015 period or 0.2 to 0.3 percentage points per year. Oettinger (2011) finds that the rate of workers working from home increased substantially in an earlier period (from

¹⁴This measurement challenge has implications for economic statistics. Siegel and Griliches (1992) note that failure to account for increased outsourcing can lead to an overstatement of productivity growth.

¹⁵Consistent with Abraham et al. (2018), the prevalence of workers who report self-employment in these surveys has remained stable over time.

a very low base), between 1980 to 2000. He finds larger increases in working from home in IT-intensive occupations. IT advances would have decreased employers' costs of offering home-based work, consistent with the measured penalty for home-based work decreasing from 30 log points to zero over this period.

The prevalence of flexible scheduling has also not increased much over the last 20 years (Figure 2).¹⁶ In fact, the GSS actually reports a slight decline in the fraction of workers who report being able to make changes in the times they begin and end work from 28% to 26% over the 2002 to 2014 time period. The CPS WSS shows little change in flexible scheduling: 30% of workers report being able to change their starting and quitting times often in both 1997 and 2004, the latest years the series was available.

Figure 3 shows that the rates of irregular scheduling have also been relatively stable since 2000. This figure uses a relatively strict definition of an irregular schedule. To be counted as irregular, workers must directly indicate that their schedule is "irregular," as opposed to a day, evening, or night shift or a rotating or split shift. Broadening the definition of an irregular schedule to include, for example, workers on a rotating shift increases the level of irregular scheduling, but the trends remain flat.

2 What Determines Alternative Work Arrangements?

In Section 1 we showed that alternative work arrangements are common but heterogeneous. In this section we will discuss factors that influence the provision of these arrangements. To begin we review the literature on how workers value these arrangements, how flexibility enters into the firm's production function, and the role of regulation.

2.1 Worker determinants: Job Satisfaction, Worker Valuation, and Careers

The first step for understanding the equilibrium determination of alternative work arrangements is worker preferences. How much do workers value these arrangements? How heterogeneous are preferences? Are differences in preferences correlated with worker characteristics? What are the economic implications of holding a nontraditional job? We begin by discussing preferences for flexible arrangements. We then move on to gig work and impacts on careers.

Valuing amenities

The literature tends to find that all else equal, workers like flexibility in where and, to a lesser extent, when they work. Several observational studies find that people with alternative work arrangements generally have

¹⁶This figure eliminates workers who report being self-employed.

higher job satisfaction (Golden et al., 2013; Bryson and MacKerron, 2016), while Bloom et al. (2015) finds that being randomly selected to be able to work from home increases job satisfaction.

One thought experiment is to ask how much a worker is willing to pay, in terms of lower compensation, for any one attribute. Eriksson and Kristensen (2014), Wiswall and Zafar (2017), and Maestas et al. (2018) use a stated-preference approach embedded in surveys to elicit this information. Mas and Pallais (2017) conduct a discrete choice experiment with applicants to call center jobs, and they also give hypothetical choices to a more representative sample of survey respondents. In their field experiment they offer applicants positions that randomly vary in the wages and job attributes and use these choices to estimate willingness to pay. All of these approaches, both the surveys and field experiments, find that workers are generally willing to pay for non-wage attributes, though the amount varies somewhat across studies.¹⁷ Mas and Pallais, for example, find that the median worker is unwilling to pay anything for flexible schedules relative to a traditional 9-5pm schedule but are willing to pay approximately 8 percent of wages to have the option to work from home. He et al. (2019) compare application rates to jobs that randomly vary in flexibility and salary and find that flexible jobs receive many more applications, an impact similar in magnitude to a large monthly salary increase. Given that job flexibility is often bundled with other, possibly worse attributes, an interesting question is how much workers value classes of job attributes. This is useful for understanding how workers value different job types, such as gig employment, which is discussed in the next subsection.

Other papers focus on negative amenities. The largest literature on this question is on the willingness to pay for safer or cleaner work conditions (surveyed in Aldy and Viscusi, 2003), but other amenities have been examined as well, such as hours variability (Abowd and Ashenfelter, 1981) and instability of work schedules (Mas and Pallais, 2017; Schneider and Harknett, 2019). Relative to traditional jobs, Mas and Pallais (2017) find that workers have strong preferences against jobs with irregular schedules, where employers can schedule workers on short notice. As we saw in Section 1, jobs with employer-determined schedules are more common for less-skilled workers.

Kaur et al. (2015) provide a novel explanation for why workers might select into different work arrangements: as a way to solve self-control problems. A worker may find it costly to decide how much to work, or when to work, if they determine their own schedule. Such a worker may be willing to pay something for a more rigid schedule in order to commit to working a fixed set of hours. Kaur et al. (2015) find empirical support for this behavior in an experiment using data entry workers. Workers had a tendency to choose

¹⁷One of the interesting methodological findings of this set of papers is that willingness to pay estimates for work attributes from hypothetical questions asked in surveys and decisions made in the field are similar. We conjecture that survey respondents are able to respond accurately about their preferences for hypotheticals that are “relatable,” like questions on work schedules, rather than abstract questions on fatality risk.

dominated contracts that nevertheless gave them stronger incentives to increase production. This behavior may explain why Mas and Pallais (2017) find that workers are willing to pay to avoid having total freedom on the number of hours worked.

Gig jobs

Gig jobs, which include independent contractor and freelance work, represent an extreme of the alternative work arrangements space. On one hand, individuals have a lot of discretion over their schedules, while on the other, they face complete responsibility for completing tasks. Wages are often uncertain, meaning that a worker needs to have an unpredictable schedule to maintain steady earnings. Gig jobs are sometimes work from home (e.g., coding) and sometimes not (e.g., a rideshare driver). Given these characteristics, the Mas and Pallais estimates suggest that gig jobs, particularly those that are not work from home, may not be highly desirable for the median worker since workers strongly prefer to avoid irregular schedules. However, due to heterogeneity in preferences, which Mas and Pallais document, these jobs might offer considerable benefits to workers who have sorted into gig work. For example, Katz and Krueger (2019) find that 84 percent of independent contractors report preferring to work for themselves which, taken at face value, suggests that these workers have largely selected into these jobs based on preferences.¹⁸

Though a small share of employment (around 1 percent in 2016), electronically-mediated gig jobs, which include employment in the online platform economy, have received a lot of attention from the press and policymakers. As discussed in Section 1, these jobs rarely provide a substantial amount of income. The main benefit of these jobs appears to be in occasional moonlighting and smoothing income. Income is often variable even for non-gig jobs. In the population of Chase Bank customers, Farrell and Greig (2016) estimate that 55 percent experienced a month-to-month swing in income of more than 30 percent. As a safety net, electronically-mediated gig jobs allow workers to quickly adjust their labor supply in response to the loss of other income or increased demand for consumption. In traditional jobs, workers may face frictions achieving their desired labor supply or becoming reemployed quickly. Gig economy platforms such as Uber and Lyft allow workers to adjust their hours and earn money almost immediately. Indeed, Farrell and Greig (2016) find a high degree of turnover in participants of online labor platforms, which may come about due to changes in their outside options. While Mas and Pallais (2017) find that relatively few workers want to adjust the number of hours they work from week to week, Koustas (2018 and 2019) finds that the small fraction of the workforce that takes a gig economy job substantially benefits from the safety

¹⁸In contrast, temporary help workers seems dissatisfied with their situations: 77 percent report that they would prefer a permanent job.

net it provides. Workers who start a gig job have falling income, declining assets, and increasing debt. Gig earnings offset most of the earnings decrease and substantially decrease the responsiveness of consumption to workers' earnings in their main job. Using a structural approach, Chen et al. (forthcoming) estimate a large labor surplus (\$150 per week, or 40 percent of wages) from Uber drivers' ability to adjust their work schedules to their own reservation wage shocks.¹⁹ As Hall and Krueger (2017) note, many Uber drivers have other jobs, potentially contributing to the value of controlling their schedule.

Gig jobs often do not provide benefits such as health insurance or retirement contributions. This may contribute to their flexibility, allowing workers to come and go as they please. However, at a given wage, this makes gig work less appealing than traditional employment, particularly in the United States, where there is a smaller social safety net. On the other hand, to the extent that the market determines total compensation and firms decide how to split this between wages and benefits, some workers may prefer higher earnings at the expense of benefits. An interesting question for future research is how the availability of social insurance programs affects the supply of workers to gig jobs. For example, do workers prefer gig employment in countries where more benefits are publicly provided?

The evidence we have about electronically-mediated employment, primarily from ridesharing, is that there is a horizontal labor supply curve for these jobs in the long-run, anchored at participants' alternative wages. For example, Hall and Krueger (2017) find that Uber had a downward trend in fares but constant hourly earnings, implying that drivers' labor supply adjusted to keep equilibrium wages constant. Hall et al. (2017) examine driver responses to fare changes. When fares increase, drivers work more hours, but spend a lower share of driving time with paying customers. If wages are anchored at the outside option, it may be difficult to increase hourly earnings. A reduction in Uber's commission would presumably be offset by an increase in driver hours, leaving hourly take home pay constant. Hourly wages could rise by restricting the number of driver hours, just as conventional taxi medallions are rationed. In fact, in New York City taxi medallions were introduced during the Great Depression precisely because low wages in the unregulated market led to violent protests (New York City Government, 2019).

Gender differences in alternative work arrangements

Conventional wisdom is that flexibility in hours or over the time and place of work may be particularly valuable for parents, particularly women with children. Indeed, Mas and Pallais (2017) find that women have a higher willingness to pay for the option to work from home while Wiswall and Zafar (2017) find that women value the option of working part-time. It has been argued that one factor in the wage gender gap

¹⁹ Angrist et al. (2017) note that rideshare drivers benefit from being able to set a work schedule without having to cover a lease.

could be differential sorting of men and women into more flexible arrangements with a lower wage (Goldin and Katz, 2011). Whether these work attributes have the potential to affect the gender wage gap depends on the concept of flexibility used. If jobs with work schedule and location flexibility are not typically associated with more family-friendly outcomes, then why should there be differential sorting of women into these jobs? In fact, there is little evidence of this kind of sorting. In Table 1, women are *less* likely to have a more flexible schedule, work from home often, or have a non-regular employment relationship. While women may demand more flexibility, in the market, schedule and location flexibility are often accompanied by some less desirable attribute like long work hours. These patterns, combined with the wage premium for more flexible positions, described above, make these types of flexibility unlikely candidates for a compensating differentials explanation for gender wage gaps.²⁰

The hours dimension of flexibility is a more promising avenue for explaining male-female gaps. The literature consistently finds that women take jobs with fewer hours, and lower hour jobs are associated with better work-life balance in all of the dimensions we considered (Table 3) as well as lower wages (Hirsch, 2005).²¹ It appears that women are mostly working shorter hours by choice. In the 2016 CPS, 80 percent of women in part-time employment report working under 35 hours per week voluntarily. Further, in Table 3 we see that there is one measure of job flexibility for which women have a clear advantage: the ability to work half-time in a job. Though the sample is small for this question, the gender differences are striking: 51 percent of employed females are in a job with this attribute as opposed to only 27 percent for men. This finding suggests that the availability of part-time jobs, or jobs that give the option of part-time work, may be an important determinant of whether women enter the labor market. Consistent with this, Blau and Kahn (2013) show in a sample of OECD countries that national policies that give workers the right to work part-time are associated with higher female employment rates.²² Blau and Kahn (2017) note that the part-time wage penalty is likely too small to contribute much to the gender wage gap.

Goldin (2014) posits that the long hours dimension may explain the majority of the gender wage gap for highly-educated workers. In many jobs, workers are not perfect substitutes for each other, such that one worker cannot simply hand off work to another. For this reason, firms may ask workers to work long hours in return for higher salaries and the possibility of future promotion.²³ If the returns to long hours are

²⁰This finding is consistent with previous papers that have failed to find evidence of sorting of female workers into more flexible arrangements (see e.g., Golden, 2001, and McCrate, 2005).

²¹Women are more likely to be in part-time employment and, even conditional on full-time employment, are less likely to work in long hour jobs.

²²In a sample of 21 OECD countries, Olivetti and Petrongolo (2017) find that countries with a higher index of work flexibility, specifically the the opportunity to accumulate days off and to vary the start and end of daily work, have smaller gender gaps in employment. (This index of work flexibility is insignificantly related to the wage gap.)

²³Kuhn and Lozano (2008) document that the incidence of long hour work for men has increased since 1980, particularly for

convex and differ by occupation, women who seek to reduce their hours will sort into occupations with lower penalties for hours reductions. Wage gaps emerge because women are paying for the amenity of “temporal flexibility.” Empirical support for Goldin’s hypothesis includes the observation that the gender wage gap is larger in occupations with a larger wage return to longer hours.²⁴ Goldin and Katz (2016) show that in the case of the pharmacy profession, technological change that increased worker substitutability narrowed the gender wage gap. Cortes and Pan (2017) find evidence that reducing constraints on highly-skilled women from working long hours via more low-skilled immigration reduces the gender earnings gap. Kleven et al. (2019) show using Danish data that the earnings penalty following childbirth is partially due to reducing hours of work, shifting to lower-ranked occupations, and shifting to more family-friendly firms (proxied by the share of female workers with children).

Careers

Worker preferences for alternative work arrangements may be driven, in part, by how these arrangements impact workers’ careers. Bloom et al. (2015) found that workers randomized to work from home had lower promotion rates conditional on performance. Teleworking employees may have less understanding of office dynamics and so be less prepared for promotions. Alternatively, being away from the office may negatively influence managers’ evaluation of worker performance. In experimental work in psychology, Elsbach et al. (2010) find that “observers interpret passive face time as an indicator of specific traits (e.g., responsibility, dependability, commitment, and dedication), and that the context of passive face time (i.e., whether it occurs during vs outside of normal work hours) is critical to the particular traits that judges assigned to those displaying passive face time.” Kossek and Van Dyne (2008) find possible deleterious effects on careers may be one reason workers do not value flexibility more. On the other hand, these types of flexibility may allow some workers to enter or remain in the labor market.

A question of interest to economists and policymakers is whether temporary and gig jobs are a stepping-stone to traditional or stable employment relationships. These jobs may provide workers with experience, skills, training, and screening valued by future employers (Autor, 2001; Pallais, 2014). On the other hand, these jobs may not help workers if the human capital component is limited or they do not offer career advancement. Temporary or gig jobs could even negatively impact workers’ careers if they crowd out more stable employment. Jackson (2019) uses U.S. tax return data to analyze the impact of the gig economy on

higher-educated and salaried workers. They estimate that the return to long hours for hourly wages is positive, even for salaried workers where there is not a mechanical link between hours and compensation. After ruling out several other explanations, they conclude that the pattern of evidence is consistent with an increased dependence of pay on job performance.

²⁴One complication with this explanation is that at the occupation level, the relationship between hourly wages and hours tends to be concave rather than convex for all but a small number of occupations, as seen in Table 2 of Cortes and Pan (2017).

the careers of unemployed workers. Using variation in individuals' propensity for gig work based on pre-unemployment characteristics and variation across counties in the penetration of gig platforms, she finds that access to the gig economy does crowd out traditional employment in the long run but increases earnings in the short run. In the year they lose their jobs, high-propensity gig workers with access to the gig economy earn \$3,000 more. However, this gain disappears the next year. Two to four years later, these workers are five percentage points less likely to be in traditional wage jobs and earn \$2,000 less per year. For workers who are 55 and over when they lose their jobs, the gig economy prolongs their working life and decreases their reliance on Social Security Disability Insurance and Social Security retirement benefits, whereas for prime age workers the gig economy leads to bigger crowdout of traditional employment and future earnings.

In a Swedish audit study, Adermon and Hensvik (2019) examine whether having a gig job on a resume increases callback rates for traditional jobs. They find gig jobs help workers with Swedish names but not Muslim names. Autor and Houseman (2010) consider a welfare-to-work program. They do not find evidence that placement in a temporary job increases subsequent employment rates, and there is some evidence that it decreases earnings in the medium-run.

The literature has also considered the impact of domestic outsourcing on workers.²⁵ There is evidence that sorting of higher skilled workers into higher wage firms has contributed to rising inequality in the U.S. (Song et al., 2018) and Germany (Card et al., 2013). Increased outsourcing could explain this trend, as it led to lower wage workers in high wage firms moving to lower wage firms. A small number of studies have estimated domestic outsourcing's wage impact. Goldschmidt and Schmieder (2017) identify outsourcing in Germany when workers in a group of occupations move jointly to another firm. They find that outsourced workers have lower earnings. Handwerker (2015) finds that workers in firms with more concentrated occupations are paid less and that approximately half of the increase in inequality from 1999-2015 can be accounted for by changes in firm occupational concentration. Dube and Kaplan (2010) observe janitors and security guards and identify outsourced workers as those who work for an employer providing labor services as an intermediate input to another firm.²⁶ Using cross-sectional regressions and a panel of job switchers, they find that outsourced jobs have relatively lower wages. They argue that the outsourcing wage discount represents lower rent sharing since outsourcing is more common in industries with high wage premia. There are compelling narrative accounts on how workers prefer working directly for a firm as a regular employee rather than through a third-party. Geundelsberger (2019) describes that in an Amazon fulfillment center

²⁵We use the term "domestic outsourcing" to distinguish it from offshoring. Dey et al. (2010) define domestic outsourcing as "as firms or governmental entities located in the United States contracting with other firms or individuals located in the United States for the provision of goods and services."

²⁶A related paper is Abraham (1988).

third party employees wore a white badge while Amazon employees wore a blue badge. The expressed goal of many white badge workers was to one day obtain the blue badge. Apart from earnings, there is not much credible empirical evidence, to our knowledge, on the relationship between outsourcing and work conditions. However, it remains a relevant question. Weil (2014) has noted that companies may sub-contract to avoid labor standards.

2.2 Firm determinants: productivity, costs, and feasibility

Flexible Scheduling and Telework

In the traditional Rosen (1986) framework, whether a firm adopts flexible scheduling or telework will depend on whether the benefits in terms of reduced wages outweigh the costs (in terms of potential lost productivity or implementation costs). In this framework, workers with the highest willingness to pay for flexibility should sort into jobs with employers who have the lowest cost of offering it. In equilibrium, the marginal worker's benefit of the amenity will equal the marginal firm's cost.

Mas and Pallais (2017) estimate the distribution of willingness to pay for certain non-wage amenities. Even though the median worker in the study may not value a given amenity, like the ability to make their own schedule, there are workers in the tail of each distribution that are willing to pay substantially. Combining the valuation results in Mas and Pallais with the fraction of workers in flexible and work-from-home jobs suggests that the marginal worker would be willing to pay 12 percent of wages for flexible scheduling and 21 percent for the option to work from home. These estimates suggest that the cost of implementing these arrangements for the marginal firm are relatively high, which might help explain why flexible arrangements are not more prevalent.

Perhaps surprisingly, Bloom et al. (2015), the seminal experimental paper on telework and productivity, finds that working from home increases productivity while decreasing capital costs. They conducted a RCT among Chinese call center workers that requested and had the capacity to work from home. Those who were assigned to work at home worked for 9 percent longer (due to taking fewer breaks), made 4 percent more calls per minute, and had significantly less turnover. Bloom et al. (2015) find substantial cost savings (before any changes in wages) from teleworking, two thirds of which came from reduced office space. Similarly, Angelici and Profeta (2019) find that Italian workers randomized into having one day per week where they telework and choose their schedule are more productive and take fewer leave days. Beckmann (2016) uses a fixed-effect model to estimate the effects of self-managed work in German firms on productivity measures. He finds that self-managed work, defined as “extensive control over the duration, position, and distribution

of their working hours,” including “discretion over starting and finishing times, breaks, vacation days and days off,” increased productivity by 9 percent but had a negligible effect on profits. Similarly, using a fixed-effect model, Linos (2019) finds that working from home increases productivity among US Patent Office employees.

If the marginal worker values telework or flexible schedules and the evidence suggests that they don't decrease productivity, why don't more workers have these types of job flexibility? One answer is that the productivity impacts of flexible work arrangements may vary across firms and job types. Allowing flexibility may be more costly for firms when teamwork is important or monitoring workers is difficult. Indeed, in Table 3 we see that workers with more flexible schedules or who work from home often are less likely to work as part of a team, highlighting the role of coordination in determining work arrangements. Battiston et al. (2017) finds that face-to-face communication is more efficient than electronic communication for emergency room operators. In their setting, call handlers relay information about emergencies to location-specific radio operators. Call time, the relevant measure of productivity, was shorter when both the call handler and the radio operator were in the same room. Similarly, Lee et al. (2010) find that papers have more citations (a measure of quality) when their authors work in the same building. Consistent with this, in a survey of German managers, Beham et al. (2015) find that managers are less likely to say they would allow a hypothetical worker to work from home when the worker's task involves teamwork. In-person communication may work through productivity spillovers, such as those found between supermarket cashiers in Mas and Moretti (2009) and other settings (Herbst and Mas, 2015). Monitoring workers may also be more difficult when workers work remotely, particularly in jobs where workers have more discretion over tasks. Working at home or a flexible schedule may allow workers to shirk or get distracted. Consistent with this, Frakes and Wasserman (2016) find that patent examiners are much more likely to procrastinate reviews when they start working from home.

Alternatively, while an employee herself may be happier and more productive while teleworking, working from home may impose a negative externality on other employees, which may raise firms' wage bill for other workers. Kossek and Van Dyne (2008) emphasize how one employee's work from home or at a non-standard time can make group communication, problem-solving, and coordination more difficult for their coworkers. Park (2017) finds that, by revealed preference, workers were willing to pay 4.5 percent of their wage to work near a friend. In this study, workers in a Vietnamese seafood processing plant were paid a piece rate, but they still chose to work near friends despite being less productive when doing so. One worker working from home can also lead to an unraveling. If one person is out of the office, that can reduce the benefit of being at work for another worker, who as a result may decide to stay home, and so on. Even

if most workers prefer to be in the office, through this unraveling all workers may end up at home. This dynamic may be familiar to readers who have experienced academic departments where no one goes to the office. Consistent with this externality mechanism, Linos (2019) finds that having more peers who can work from home increases absenteeism and sick leave among co-workers ineligible for teleworking.

If technological advances have decreased the marginal firm's costs of providing flexibility, we might expect these amenities to become more common, but they largely have not. It is difficult to know the extent to which the costs of offering flexibility has changed over the last 15 to 20 years, but several statistics suggest that the cost has decreased. From 2000 to 2015, the fraction of households with a computer increased from roughly 50 to 80 percent, while the fraction with internet increased from roughly 40 to 75 percent (American Community Survey, 2018). In 2000, virtually no households (1 percent) had broadband internet at home, while today virtually all household internet is high-speed (Pew Research Center, 2019). File-sharing platforms developed over this period may have also made it easier to collaborate when working at a non-standard time or place. Dropbox, which has over 125 million U.S. users, launched in 2008 (Dropbox, 2016), while Microsoft OneDrive and Google Drive launched in 2007 and 2012, respectively.

However, it could be that these advances may have largely affected inframarginal jobs, jobs where teleworking was already occurring, in which case we would not expect these declines to change the prevalence of teleworking. The cost of offering flexible work arrangements may still be high for jobs requiring substantial collaboration or interaction with customers or physical infrastructure. Moreover, in many jobs, working from home is not technologically feasible. In the UAS, the median worker reports that only 6 percent of their job could feasibly be done from home.²⁷ Among workers who report they can do at least half of their job from home, 58% do any work from home and 39% work from home at least once a week relatively to 15 percent and 10 percent of other workers, respectively.

Outside of the simple Rosen framework, firms could choose not to offer flexible work arrangements if they thought those arrangements would attract less hardworking or motivated workers. Worker motivation may be hard to discern during the hiring process and some firms may want to portray their jobs as demanding to weed out less committed workers. However, Bloom et al. (2015) find that there is little overall relationship between prior productivity (measured by the prior wages in a setting with high performance pay) and willingness to work from home. Nevertheless, the workers in this experiment all selected into and demonstrated their willingness to complete non-teleworking jobs beforehand.

²⁷While we did not collect occupation data, we can link our data to occupations collected two years earlier for a subset of workers. Workers in "computer and mathematical" and "business and financial operations" saying that they can do a majority of their work from home while workers in "transportation and material moving," "installation, maintenance, and repair," and "food preparation and serving" report that less than 5 percent of their work can be done from home.

The simple Rosen framework is also complicated by the fact that flexibility complements a production process that relies on monitoring outputs rather than worker inputs, as discussed in Section 1. Amenities are multi-dimensional and “positive” amenities may often be linked to “negative” amenities. The marginal firm may be trading off a more productive flexible production process at higher costs for a more rigid process at a lower cost, while the marginal worker may be contemplating trading off traditional schedules at lower pay for more malleable and demanding schedules for higher pay. This suggests that the marginal cost of offering more flexibility as a benefit may be even higher than above since the share of flexible jobs that are not offset by higher overall workloads may be relatively small.

Flexible Staffing Arrangements and Outsourcing

A core issue in firm organization is the make-or-buy decision. In the labor market, firms can directly hire a worker to perform a job, contract with another firm, hire independent contractors, or use “flexible staffing” (temp workers).

Firms may use flexible staffing to fill temporary positions that arise from short-term employee fluctuations or temporary fluctuations in demand. In a 1996 survey, employers cited adjusting to unexpected changes in demand or filling temporary vacancies as the most common reason for using flexible staffing (Houseman, 2001). However, employers may also use flexible staffing to screen workers for regular jobs (Autor, 2001) or to reduce wage costs by circumventing collective bargaining agreements.²⁸

Firms may contract work externally (using independent contractors or outsourcing to another firm) for efficiency reasons. It may be more efficient to specialize in the firm’s core activities (“focusing on competencies”) rather than hiring and managing workers in support activities. If output is volatile, firms may not want to incur the costs of hiring and laying off regular workers. If these are the prime motivations for outsourcing there may be limited negative impacts on wages. Contrary to this explanation, Abraham and Taylor (1996) find that firms in more cyclical and seasonal industries are less likely to contract out janitorial and machine maintenance workers. However, Abraham and Taylor (1996) note that firms with more volatile output may redeploy workers to other activities during low demand periods, as found in Fay and Medoff (1985). Unfortunately, there is a dearth of firm-level data, particularly recently, that can be used to better understand how firms make these decisions.

Firms may also contract out work to save on wages and benefits or reduce costs associated with working conditions. Workers in support roles in high-wage firms may earn above-market wages either due to rent

²⁸As Abraham and Taylor (1996) note, unions can affect the use of contract work in either direction since contract work may reduce wage costs but could be harder to employ with union work rules that make it more difficult for employers to contract out. In their paper, they found no systematic relationship between unionization and a firm’s decision to contract out.

sharing or a desire for equity, while contract firms would not pay these workers such high wages. Contracting out workers can allow firms to avoid paying fringe benefits or have these workers in the same benefits pool. A monopsony explanation is that a firm can increase employment by hiring contract workers at their marginal cost without raising wages on the regular workforce. By using contract workers, the firm equates the marginal cost of a hire with the wage and hires the efficient number of workers. This can lead to a situation where contract workers are paid more than regular workers, as is the case in the nursing industry (Seo and Spetz, 2013). In this case, wages are higher not as compensation for a lack of benefits, but because firms are moving up their labor supply curves.

2.3 Regulations and institutions

A strand of the alternative work arrangements literature has considered the distributional and welfare effects of regulations prohibiting or compensating workers for bad working conditions. To the extent that frictions or imperfect competition prevent non-wage amenities from being priced into wages (e.g., Hwang et al., 1998; Lang and Majumdar, 2004; Sorkin, 2018), there may be a welfare-enhancing role for regulation to compensate workers for negative amenities. Alternatively, regulation simply serve to protect workers and promote worker wellbeing similar to minimum wage laws or safety regulations. We review a few of these regulations below through a full accounting of work arrangement regulations is beyond the scope of this review.

Overtime

Overtime regulation, requiring employers to pay some workers 1.5 times wages for weekly hours over 40, is one of the most important labor market regulations in the United States. Theoretically, overtime regulations could impact work hours, wages, and employment. In a conventional model of hours determination employers do not care about the hours of any particular worker, only total labor hours (Lewis, 1957, Pencavel, 2016). Given an offered wage, workers choose their preferred work hours. Overtime regulation should discourage employers from allowing workers to work more than 40 hours per week, leading to a spike in the hours distribution at 40 hours, which is observed in the data (Ehrenberg, 1971). Inconsistent with this model, however, we observe overtime work, which may arise due to firm preferences over individual hours worked (if firms don't view workers as perfect substitutes) or temporary increases in demand. Extensions of the simple labor supply model allow firms to have preferences on individual hours worked, while firms and workers negotiate on wage-hour bundles (Brechtling, 1965; Lewis, 1969). Since workers will require higher compensation to work more hours (e.g., Mas and Pallais, 2019), employers will pay higher wages for more

hours. This is consistent with collective bargaining agreements often including wage premia for overtime work. However, in this class of models, overtime regulations may have limited effectiveness since employers can respond by reducing the base wage. Consistent with this, in a cross-sectional regression Trejo (1991) finds that among Fair Labor Standards Act (FLSA)-eligible workers, overtime work is associated with lower base pay, though not enough to fully offset the overtime premium.

The key overtime policy question currently concerns which workers are exempt from overtime compensation. The FLSA permits firms to exempt primarily white collar workers provided that their salary and total annual compensation is above a certain threshold. Exempt workers are usually salaried employees, who tend to work more hours than hourly workers, and have more flexibility in their jobs (see Section 1). In 2016 the Obama administration promulgated a rule that would have substantially increased the exemption income threshold from \$23,660, the level since 2004, to \$47,476 per year. The Department of Labor estimated that this change would affect 4.1 million workers in the year it was to be enacted and result in a \$1.3 billion transfer from employers to workers (U.S. Government, 2016). The rule did not ultimately go into effect after being contested in the courts, but the Trump administration has proposed a new rule that would set the threshold at \$35,308 (U.S. Government, 2019). In a frictionless model, being subject to overtime regulation would not affect workers' hours or total compensation. Employers would simply reclassify salaried employees working over 40 hours per week as hourly workers and set wages such that their overall income is unchanged. However, this may be infeasible if hours are hard to track, or if there are other costs to reclassification.²⁹ In that case employers can respond by either raising salaries or laying off workers. The economics of the question are then similar to that of raising the minimum wage but at a higher part of the income distribution. The cost-benefit analyses used by the Department of Labor to analyze these regulations were based on numerous assumptions on these questions for which rigorous economic research could provide better evidence. Answers to these questions would help analysts understand the welfare and distributional effects of these policies.

Time and Day of Work

At the federal level in the U.S., there aren't regulations on time and days of work. However, in many European countries, work is restricted on Sundays, evenings, and during summer months. Hamermesh and Stancanelli (2015) estimate the incidence of night and weekend work in the U.S. would decline by 10 percent under European standards. An interesting question is why European countries regulate work days and hours. These regulations may be done to align work hours to worker preferences in a situation where

²⁹It also begs the question why a firm cares to exempt workers if this classification is neutral on any outcome.

there are market failures or to increase worker surplus. Mas and Pallais (2017) find that workers have a strong preference for traditional work hours; in their sample of primarily female job applicants, workers are willing to pay 14 percent of wages to avoid evening work and 19 percent of wages to avoid weekend work. There may also be a coordination motive to time or day of work regulation if leisure of friends and family are complements, as is likely the case (Alesina et al., 2006). This coordination may help explain why there are more vacation days taken in Europe.³⁰

Advance Scheduling

At the state and local level, a number of new laws, starting with San Francisco's Retail Employee's Bill of Rights in 2015, provide workers more advanced schedule notice. The rule requires large retailers to post workers' schedules two weeks in advance and pay additional wages if schedules are changed. Since then, Oregon, New York City, Washington D.C., Chicago, Philadelphia, and Seattle among others have passed similar ordinances which mainly affect large employers in retail, hospitality, and food service.³¹ These ordinances may also require employers to give workers a certain number of hours between shifts and require (as San Francisco's does) additional hours to be offered to part-time workers before hiring new workers or engaging contractors or a staffing agency.

The idea behind these laws is that learning schedules or having them changed on late notice may be costly for workers juggling many obligations and lead to work-family conflict (as found by Henly and Lambert, 2014).³² We are not aware of research on the impact of these laws on scheduling, worker wellbeing, employment or wages. One open question is how much late-notice scheduling can smooth employers' demand or labor supply shocks. If last-minute scheduling brings employers limited benefits but is costly for workers, another open question is what frictions may lead firms to engage in last-minute scheduling instead of lowering wages.³³

³⁰Despite the lack of regulation in the U.S., market forces have changed the work hour distribution. The rate of night work for men (defined as being at work at 3 am), has declined from 8 percent in 1973 (Hamermesh, 1999) to 4 percent in 2018 (authors' calculation from 2018 ATUS). Hamermesh (1999) shows that, at least until 1991, this decline could not be explained by industrial or demographic shifts and was largest for top quartile wage earners workers. He argues that the changes are consistent with nightwork as a disamenity (which Mas and Pallais, 2017, confirm and quantify) and workers shifting out of nightwork with rising real wages.

³¹At the same time, at least seven states including Georgia, Michigan, and Ohio passed laws prohibiting municipalities from enacting these ordinances.

³²Mas and Pallais (2017) find that workers have similar valuations for non-standard schedules that are consistent from week-to-week and non-standard schedules that are only revealed a week in advance. However, workers may find learning their schedules on shorter notice more difficult.

³³Of course, firms paying minimum wage can't lower wages. Moreover, minimum wage laws could lead to reduced amenities such as advanced scheduling if it leads firms to provide a higher fraction of compensation through wages.

Independent contractor classification

There is an active debate about which workers can legally be classified as independent contractors as opposed to regular employees. Companies may have an incentive to classify workers as independent contractors to circumvent workplace regulations or avoid paying minimum wage rates, paying unemployment and workers' compensation taxes, providing fringe benefits, or withholding income.

Federally, Internal Revenue Service (IRS) and Department of Labor tests for whether a worker can be classified as an independent contractor involve permanence and the amount of control a company has over a worker. The more control a company has over how, when, and where a worker's job is performed, the more likely she is to be classified as a regular worker. However, there is evidence that there is widespread misclassification of regular workers as independent contractors (Leberstein, 2012). Several states have adopted or proposed adopting more stringent rules for independent contractor classification. For example, a recent law in California, California AB 5, establishes what's known as an "ABC" test for classification. A worker can only be classified as an independent contractor if she is free from the company's control, doing work that is not central to the company's business, and has an independent business in that industry. This test is far more stringent than the IRS rules, and analysts expect it will require classifying gig economy workers to regular employment status unless companies receive exemptions (Wiley and Bollag, 2019).

An interesting question is how such reclassification from independent contractor to regular employee affects wages, access to benefits, labor supply and job satisfaction. A regular employee will have access to more benefits than an independent contractor, but the resulting increased value of employment may be offset by lower wages, as in the Summers (1989) model of mandated benefits. In the Summers model, wages decline by the degree to which workers value the benefits. However, if workers value benefits less than the cost of provision or if downward wage rigidity prevents wages from adjusting downward, reclassification results in lower employment and welfare loss. We are unaware of causal evidence on these issues. In the 2015 RAND-Princeton Contingent Worker Survey, Katz and Krueger (2019) document that independent contractors earn higher wages than traditional employees controlling for occupation. However, independent contractors work fewer hours and have lower weekly earnings. As they suggest, this wage premium might be a compensating differential for lower benefits and the need to pay self-employment taxes, but it may also reflect unobserved characteristics.

Enforcing a minimum wage for reclassified workers presents some challenges. Freelancers are often hired in this category because it is easier to monitor their output than time inputs. One possibility is to hire reclassified workers as salaried workers, who are exempt from the minimum wage. However, this requires

compensation to exceed the federally mandated salary threshold, effectively requiring a worker to work exclusively for one company. An alternative would be to define a work schedule over which hourly wages can be computed, though whether this is feasible depends on the nature of the work.

To appreciate the difficulties that arise when regulating a minimum wage in the gig economy consider the ridesharing industry, where drivers are only paid while they have a passenger, not when they are waiting for a fare. Ignoring gas and car expenses, the hourly wage of a driver is the hourly customer cost*driver's share*utilization, where utilization is the fraction of an hour the driver has a passenger. The highly elastic labor supply for ride-share drivers suggests that, at least in the long run, the wage is anchored at workers' outside option in equilibrium.³⁴ A minimum wage therefore cannot be regulated through the fare or driver's share since utilization is endogenous and the number of drivers can adjust to bring the wage back to the outside option. Maintaining a minimum wage in markets where the alternative wage is below the minimum would require restricting driver entry.³⁵ One option would be to require companies to specify shifts over which drivers would be guaranteed a minimum income. This would require companies to forecast demand over time and space and change their business model to require drivers to pick up passengers. An alternative approach would be to directly regulate utilization. For example, rideshare companies could be required to have their cars occupied at least 70 percent of the time that their apps are turned on. This requirement, combined with appropriately set fares and drivers' shares would guarantee workers a minimum wage. In either case, the likely result of these policies would be a shift towards more full-time drivers on predetermined schedules and away from drivers working occasional hours. The policy would benefit drivers already working full-time, but driver surplus of the kind documented in Chen et al. (forthcoming) would be lost from eliminating the flexible nature of the work.

3 Conclusion

This article starts by laying out a few facts about alternative work arrangements. Alternative work arrangements are heterogeneous and widespread, such that most jobs have some nontraditional feature. Nevertheless, work arrangements have been relatively stable over the past 20 years while new, electronically-mediated gig jobs remain quite limited. In other words, the traditional job is certainly not dead. Work conditions vary substantially by education, with college-educated workers much more likely to have schedule or location flexibility but also more likely to work long hours. While these types of flexibility are often considered family-friendly, in practice, flexible jobs come with both more freedom and more responsibility. Workers

³⁴Rideshare drivers' outside option may be home production or leisure, whose value may be below the minimum wage.

³⁵For example, in New York City, Uber and Lyft halted hiring new drivers after the city imposed a minimum wage [Keck, 2019].

find these jobs more stressful and less-family friendly. This may explain why women are not more likely to have schedule or location flexibility but are more likely to work shorter hours or part-time.

The alternative work arrangements literature has tackled a number of questions. On the worker side, papers have estimated workers' valuations of different conditions and the impact of arrangements on workers' careers. On the firm side, the literature has evaluated the productivity impacts of alternative arrangements and why firms might use outsourcing or flexible staffing. However, it is still an open question how worker preferences and firm production functions combine with market frictions to determine equilibrium work arrangements. The Rosen (1986) model remains seminal, but empirical work has had difficulty identifying the compensating wage differentials it implies. Several papers (e.g., Hwang et al., 1998; Lang and Majumdar, 2004; Bonhomme and Jolivet, 2009) have proposed alternatives, showing how frictions can explain the lack of compensating differentials. Understanding how work conditions are determined is crucial to answering the key public policy questions over these arrangements. It could inform what the relevant alternatives are for workers and firms, whether workers are compensated for negative amenities, and if they aren't, why not. This would shed light on whether regulations forcing firms to restrict or compensate workers for arrangements (such as long hours, weekend work, or independent contracting) and initiatives promoting positive arrangements (such as telecommuting or flexible scheduling) would be welfare-enhancing or market-distorting.

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Table 1: Relationship between Alternative Work Arrangements and Education and Gender

	(1) Flexible Schedule (GSS)	(2) WFH Often (GSS)	(3) Formal WFH (UAS)	(4) Regular Perm (GSS)	(5) Self-Employed (GSS)	(6) Salaried (ATUS)	(7) Irregular (GSS)	(8) Sched TwoWeeks (UAS)
College or More (Yes = 1)	0.135*** (0.032)	0.284*** (0.020)	0.131*** (0.020)	0.083*** (0.019)	0.005 (0.008)	0.420*** (0.013)	0.010 (0.017)	-0.203*** (0.025)
Some College (Yes = 1)	0.041 (0.033)	0.089*** (0.021)	0.030 (0.021)	0.059** (0.020)	0.002 (0.009)	0.085*** (0.014)	0.011 (0.018)	-0.037 (0.027)
Female (Yes = 1)	-0.091*** (0.027)	-0.048** (0.017)	0.011 (0.017)	0.048** (0.016)	-0.043*** (0.007)	-0.058*** (0.011)	-0.017 (0.014)	-0.026 (0.022)
Weighted Mean	0.324	0.263	0.139	0.804	0.105	0.420	0.143	0.279
Observations	1180	2502	1663	2493	7471	6348	2502	1663

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 1: This table reports OLS coefficients and standard errors on the effect of college completion, some college completion, and being female on certain alternative work arrangements. The dependent variable in Column (1) is the probability of having a flexible schedule. The dependent variable in Column (2) is the probability of working from home often. The dependent variable in Column (3) is the probability of having a formal work from home arrangement. The dependent variable in Column (4) is the probability of being a regular/permanent employee. The dependent variable in Column (5) is the probability of being self-employed. The dependent variable in Column (6) is the probability of being salaried. The dependent variable in Column (7) is the probability of having an irregular shift. The dependent variable in Column (8) is the probability of knowing one's schedule two weeks or less ahead of time. The table reports weighted means and number of observations. All models include age, the quadratic of age, and population weights. The sample is restricted to the employed between the ages of 18-65. These estimates use the 2011 Leave Module of the American Time Use Survey (ATUS), the 2012, 2014, 2016, and 2018 waves of the General Social Survey (GSS), and the Understanding America Survey (UAS).

Table 2: Relationship between Hours/Work Intensity and Education and Gender

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Usual Work Hours (ATUS)	Part-Time (ATUS)	Long hours (ATUS)	Late Work (ATUS)	Days Extra Hours (GSS)	Mandatory Extra Days (GSS)	Stressful (GSS)	Work Interferes with Family (GSS)	Able to Work Part-Time (UAS)
College or More (Yes = 1)	2.789*** (0.342)	-0.075*** (0.011)	0.114*** (0.011)	0.149*** (0.013)	2.016*** (0.360)	-0.044* (0.021)	0.082*** (0.017)	0.115*** (0.020)	0.001 (0.070)
Some College (Yes = 1)	1.206*** (0.363)	-0.025* (0.011)	0.047*** (0.012)	0.068*** (0.014)	-0.320 (0.378)	-0.001 (0.023)	0.013 (0.018)	0.056** (0.021)	-0.086 (0.073)
Female (Yes = 1)	-5.948*** (0.289)	0.154*** (0.009)	-0.166*** (0.010)	-0.069*** (0.011)	-1.807*** (0.301)	-0.089*** (0.018)	0.028* (0.014)	-0.060*** (0.016)	0.287*** (0.059)
Weighted Mean	40.449	0.200	0.223	0.346	5.727	0.278	0.329	0.455	0.360
Observations	6645	7032	7032	7032	2472	2486	4454	3592	246

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: This table reports OLS coefficients and standard errors on the effect of college completion, some college completion, and being female on certain alternative work arrangements. The dependent variable in Column (1) is the number of hours an individual reports usually working. The dependent variable in Column (2) is the probability of being a part-time employee. The dependent variable in Column (3) is the probability that an individual works long hours, defined by working more than 45 hours a week. The dependent variable in Column (4) is the probability of reporting working late. The dependent variable in Column (5) is the number of days where extra hours are required. The dependent variable in Column (6) is the probability of working a job where extra hours are required. The dependent variable in Column (7) is the probability of reporting working a stressful job. The dependent variable in Column (8) is the probability of reporting that work interferes with family. The dependent variable in Column (9) is the probability being able to work part-time. The table reports weighted means and number of observations. All models include age, the quadratic of age, and population weights. The sample is restricted to the employed between the ages of 18-65. These estimates use the 2011 Leave Module of the American Time Use Survey (ATUS), the 2012, 2014, 2016, and 2018 waves of the General Social Survey (GSS), and the Understanding America Survey (UAS).

Table 3: Flexible Work Arrangements and Work Intensity Outcomes

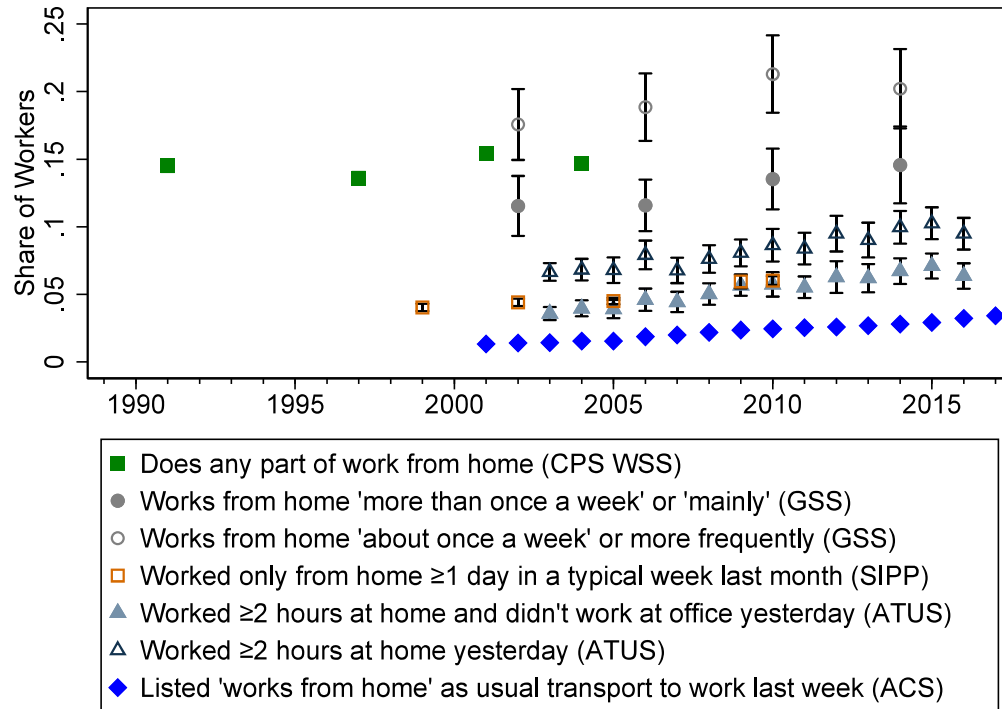
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Job is Stressful (GSS)	Job Interferes with Family (GSS)	Days with Extra Hours (GSS)	Freedom (GSS)	Team Work (GSS)	Long Hours (ATUS)	Late Work (ATUS)
Panel A: Work From Home Often							
Work From Home Often	0.054** (0.022)	0.203*** (0.023)	2.622*** (0.358)	0.166*** (0.024)	-0.088*** (0.024)	0.121*** (0.019)	0.336*** (0.022)
Weighted Mean	0.329	0.455	5.727	0.546	0.554	0.223	0.346
Observations	4456	3593	2473	2498	2492	7032	7032
Panel B: Flexible Schedule							
Flexible Schedule	0.042 (0.029)	0.040 (0.032)	0.723 (0.485)	0.351*** (0.030)	-0.132*** (0.032)	0.007 (0.010)	0.074*** (0.012)
Weighted Mean	0.329	0.455	5.727	0.546	0.554	0.223	0.346
Observations	4456	3593	2473	2498	2492	7032	7032
Panel C: Part-Time							
Part-Time	-0.126*** (0.019)	-0.107*** (0.023)	-3.150*** (0.417)	0.036 (0.028)	-0.114*** (0.028)	-0.229*** (0.012)	-0.091*** (0.015)
Weighted Mean	0.329	0.455	5.727	0.546	0.554	0.223	0.346
Observations	4456	3593	2473	2498	2492	7032	7032

Standard errors in parentheses

* ($p < 0.05$), ** ($p < 0.01$), *** ($p < 0.001$)

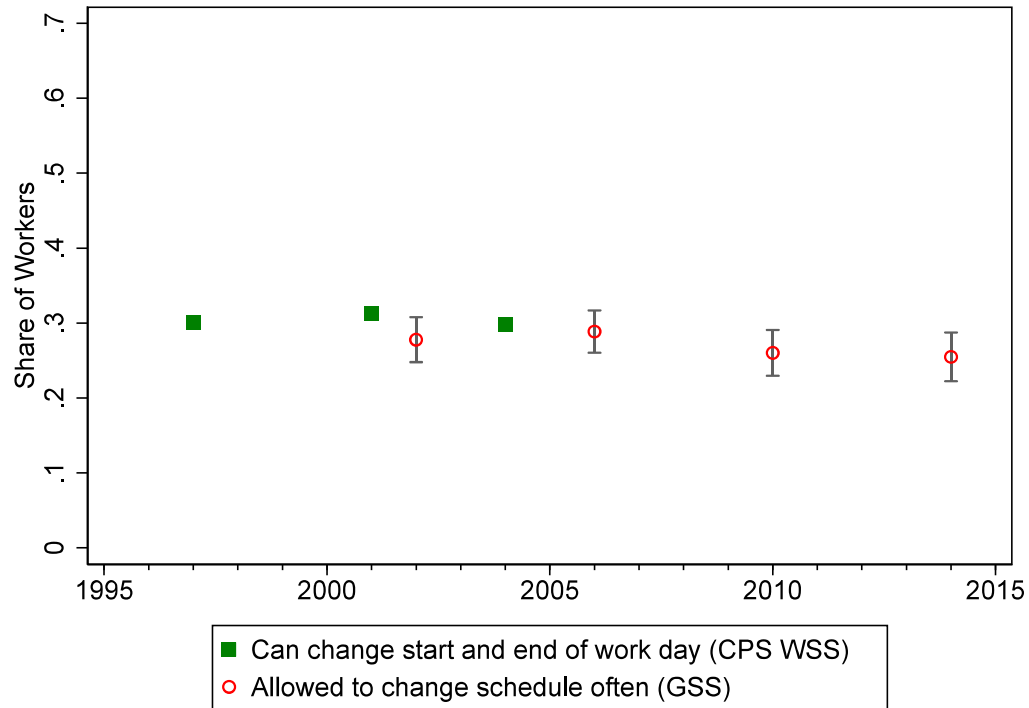
Table 3: Panel A reports OLS coefficients and standard errors on the effect of working from home often on certain job characteristics. Panel B reports OLS coefficients and standard errors on the effect of having a flexible schedule on certain job characteristics. Panel C reports OLS coefficients and standard errors on the effect of working part-time on certain job characteristics. The dependent variable in Column (1) is the probability of reporting one's job as stressful. The dependent variable in Column (2) is the probability of reporting that work interferes with family. The dependent variable in Column (3) is the number of days that require extra hours. The dependent variable in Column (4) is the probability of reporting having the freedom to decide how to do one's job. The dependent variable in Column (5) is the probability that an individual reports working on a team. The dependent variable in Column (6) is the probability that an individual works long hours, defined as working more than 45 hours a week. The dependent variable in Column (7) is the probability of reporting working late. The table reports weighted means and number of observations. All models include an indicator for college completion, an indicator for some college completion, an indicator for being female, age, the quadratic of age, and population weights. The sample is restricted to the employed between the ages of 18-65. These estimates use the 2011 Leave Module of the American Time Use Survey (ATUS) and the 2012, 2014, 2016, and 2018 waves of the General Social Survey (GSS).

Figure 1. Work From Home
Excluding Self-Employed Workers



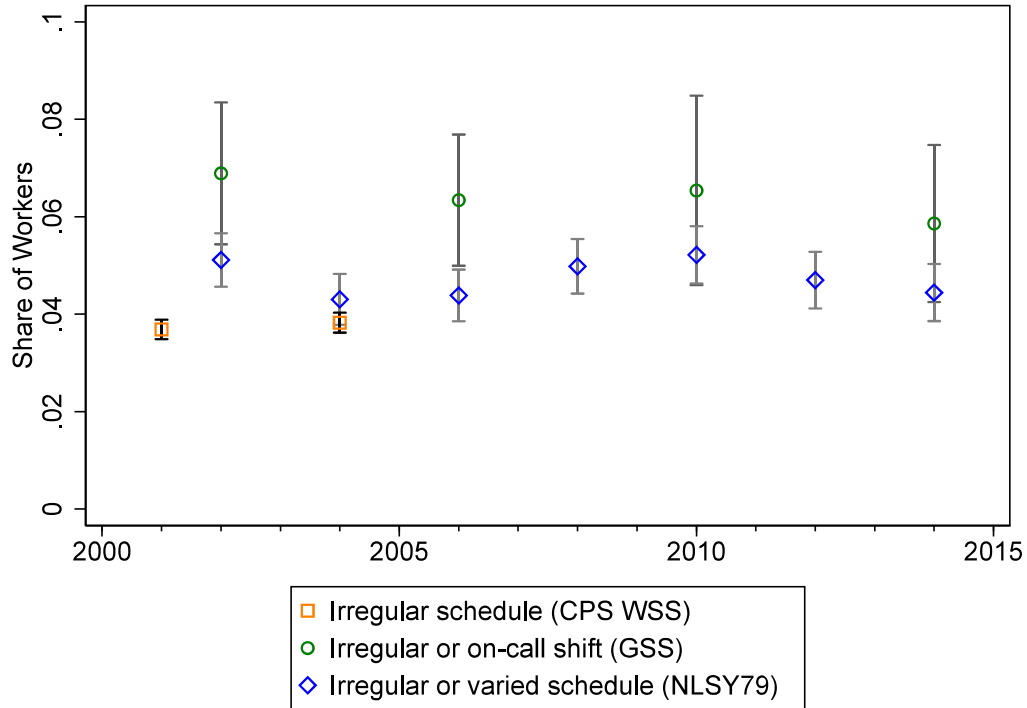
Notes: In the Current Population Survey Work Schedules Supplement (CPS WSS), respondents were asked of their primary job, “As part of this job, do you do any of your work at home?” In the General Social Survey (GSS), respondents were asked of their main job, “How often do you work at home as part of your job?” The first series plots the share of respondents who answered “more than once a week” or “mainly at home,” while the second adds workers responding “about once a week.” The Survey of Income and Program Participation Data (SIPP) asked, “As part of the work schedule for [a typical week last month], were there any days when you worked only at home for [your main job]?” Workers who answered they worked from home more than once in a typical week are included as working from home. In the American Time Use Survey (ATUS), respondents’ answers refer to the day before the interview (the reference day). Only individuals who worked at least two hours on the reference day are included. In the American Community Survey (ACS), respondents were asked, “How did [the respondent] usually get to work last week?” The sample shown here is those who reported “worked from home” as opposed to other modes of transportation such as “auto, truck or van” or “subway or elevated.” Individuals who are not in the labor force, employed but temporarily absent, unpaid family workers, or self-employed are excluded from all analyses. Error bars represent 95% confidence intervals.

Figure 2. Flexible Schedule
Excluding Self-Employed Workers



Notes: For the Current Population Survey Work Schedules Supplement (CPS WSS), respondents were asked of their primary job, “Do you have flexible work hours that allow you to vary or changes in the time you begin and end work?” The series plots the fraction of workers responding affirmatively. General Social Survey (GSS), respondents were asked of their main job, “How often are you allowed to change your starting and quitting times on a daily basis?” The sample shown is the share of respondents who answered “often” (as opposed to “sometimes,” “rarely,” or “never”). Individuals who are not in the labor force, employed but temporarily absent, unpaid family workers, or self-employed are excluded from all analyses. Error bars represent 95% confidence intervals.

Figure 3. Irregular Hours
Excluding Self-Employed Workers



Notes: Respondents to the Current Population Survey Work Schedules Supplement (CPS WSS) were asked if they typically worked a daytime schedule or some other schedule. Respondents not working a regular daytime schedule were asked, “Which of the following best describes the hours you usually work at this job?” with the options “a regular evening shift,” “a regular night shift,” “a rotating shift,” “a split shift,” and “an irregular schedule.” Only respondents choosing “an irregular schedule” are coded as having an irregular schedule. GSS participants were asked, “Which of the following best describes your work schedule?” and given the options “day shift,” “afternoon shift,” “night shift,” “split shift,” “irregular shift/on-call,” and “rotating shifts.” Respondents choosing “irregular shift/on-call” are counted as having irregular schedules. NLSY79 respondents were asked if they typically worked a regular day shift schedule. Workers responding negatively were asked, “Which of the following best describes the hours you usually work at this job?” with the options “regular evening shift,” “regular night shift,” “shift rotates,” “split shift,” and “irregular schedule or hours.” Respondents indicating “irregular schedule or hours” are coded as having an irregular schedule. Individuals who are not in the labor force, employed but temporarily absent, unpaid family workers, or self-employed are excluded from all analyses. Error bars represent 95% confidence intervals.