

A tale of hours worked for pay from home during the Great Recession*

Preliminary and incomplete

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Abstract

Earlier work establishes that the recent recession has dramatically impacted the American labor market. Here we exploit the daily diaries of the American Time Use Survey to investigate how the Great Recession affected the timing and the place of work. The large variation in unemployment rates across states enables us to capture the impact of the Great Recession on where and when Americans work. Our sample is representative of the US population and includes over 150,000 individuals, surveyed between 2003 and 2016. We control for a yearly time trend, as well as individual socio- demographic characteristics, and state, industry, and occupation fixed effects. We find that while hours worked daytime, on weekdays, and from the office dropped sharply with the Great Recession, hours worked from home and from elsewhere than the office went up. Moreover, we conclude that this increase in hours took place at the intensive margin, conditional on being employed and not self-employed - which is possibly well in line with evidence from recent studies that work effort and productivity rose during the Great Recession.

Keywords: Time allocation; Labor Supply; Great Recession

JEL codes: J22; J6; J29

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Introduction

A growing body of research shows that the Great Recession has dramatically changed the US labor market and that some of its adverse employment effects have not yet been mitigated, with the weakest segment of the labor market being hit the hardest (Farber, 2017). There is also evidence that productivity per worker rose during the great recession (Lazear, Shaw and Stanton, 2016). However, little attention has been paid to date to the possible effects of the Great Recession on the timing and the place of work, which also may impact labor productivity and workers' wellbeing. Our research aims to bridge this gap.

The slim literature on home-workers, night-workers, and weekend-workers covers the pre-Great-Recession period documenting a secular rise in these forms of work (Oettinger, 2011; Presser and Ward, 2011). Hamermesh and Stancanelli (2015) show that Americans are much more likely than Europeans to work at night and on weekends, by comparing certain points in time for selected countries in the 2000s. Here, we exploit unique diary data from the American Time Use Survey (ATUS) to pin down the impact on individual work schedules of the Great Recession (referred to as GR hereafter), the most severe recession ever since the Great Depression (International Monetary Fund, 2009), which officially started in December 2007 and ended in June 2009 (National Bureau of Economic Research, 2010).

In particular, employers may find it convenient to increase production on a weekend or at night if it can be done at reduced costs, for example, if electricity is cheaper at night, or to increase the productivity of fixed capital goods. Work from home is also likely to be relatively cheaper than work from the office for employers, as long as they do not have to provide home office facilities. Workers who fear losing their job due to the GR may end up voluntarily bringing work home and/or extending the working week into the weekend and/or prolonging the working day into nighttime work. Then, these forms of work may well have

declined less than day-work, on a week-day, or from the office in the aftermath of the GR. If so, this may perhaps explain some portion of the rise in workers' productivity observed during the 2008-9 recession (Lazear, Shaw and Stanton, 2016).

Here, we exploit the richness of the daily diary data on individual time use collected by the American Time Use Survey (ATUS), conducted by the Bureau of Labor Statistics (BLS) since 2003, to measure the extent of hours worked for pay from home. More than ten thousand Americans are randomly drawn from the U.S. population to respond to this annual survey, which produces an analysis sample of over 180,000 individuals, spanning the 2003 to 2016 ATUS surveys. The ATUS diary also records the location of the activities. This is the only federal survey to collect comprehensive time use diaries for a representative sample of the population on a systematic basis, providing us with unique measures of when and where Americans work. To disentangle the impact of the GR on the labor market from secular trends in technical and trade changes (Ramey, 2012), the ATUS data are merged with data on unemployment by state taken from the Local Area Unemployment Statistics (LAUS), collected by the Bureau of Labor Statistics.

Moreover, the ATUS daily diary enables us to capture spells of work performed from home also during days in which workers commuted to the office or elsewhere, with the latter including twenty-four possible locations other than home or the office, such as, for instance; someone else's home, a restaurant, a bank, the post-office, the subway, an airplane, and a taxi. Indeed, we find that on average, more than one out of every two teleworkers worked also some positive hours from the office or from "elsewhere; while only less than one in two teleworkers did not spend any time at all commuting. In contrast, over 60% of those who did not commute on the diary day, worked from home against over 35% from the office (presumably for the latter workers, the office premises are at home) and less than ten per cent from elsewhere. This suggests that telework is not fully captured by spells of work without

commute, which adds value to our data analysis relative to those that proxy telework with no commute as better data. We also find that about 20% of those working from home do so on a weekend day, versus 80% on a week day; and that 30% of the hours worked from home are performed nighttime¹ – between 10pm and 6am- versus 70% daytime. Thus, roughly one out of every three teleworkers is a night-time worker, and one in five is a weekend worker. Work performed at night or on weekends weighs negatively on socializing and family-time-together (Hamermesh and Stancanelli, 2015), often reflecting a lack of worker control over the schedule. Although working from home is often rated favorably, as it enables individuals to better combine work and family life, and entails no commute costs, the literature also points to the downside of home-work due to “boundary spanning demands and resources” (Voydanoff, 2005b) and “work-family role blurring” (Schieman and Young, 2010). Working-from-home allegedly leaks into multi-tasking (see, for instance, Bianchi et al., 2000, for a definition of multi-tasking), work-family conflict, and stress (Henly, Shaefer and Waxman, 2006; Schieman and Glavin, 2008; Schieman, Milkie and Glavin, 2009; Voydanoff, 2005a; Wight and Raley, 2009).

Our empirical approach relies on a linear regression model of hours. We control for a yearly time trend, as well as individual socio- demographic characteristics, state, industry, and occupation fixed effects. We conclude that hours worked daytime, on weekdays, and from the office dropped sharply with the Great Recession, while nighttime work, weekend work and work without commute were impacted to a much lesser extent. In particular, we show that hours worked from home and from elsewhere increased. Moreover, most of the increase in hours took place at the intensive margin rather than the extensive margin. This may perhaps explain some portion of the rise in productivity observed during the 2008-9 recession (Mulligan, 2011; Lazear, Shaw and Stanton, 2013). In particular, using daily panel data for a

¹ Applying the same definition of nighttime work as in Hamermesh and Stancanelli (2015).

large US firm, Lazear, Shaw and Stanton (2013) find a significant increase in output per worker at this firm during the Great Recession, which appears to be driven by an increase in work effort. The authors show that each worker at the firm produced more while holding worker quality constant, which they call “making do with less”, so that the same output was produced by fewer workers; and they explain this by arguing that during recessions workers are willing to work harder for the same wage, as the value of alternatives falls and they fear losing their job. Moreover, recent experimental evidence (Bloom et al. 2015) suggests that working from home increases workers’ productivity. Overall, one may conjecture that the increase in hours worked from home and from elsewhere may perhaps contribute to explaining some of the increased productivity impact of the Great Recession documented in the literature.

1. The data

We use unique data drawn from the American Time Use Survey (ATUS), spanning 2003 to 2016, which cover a large and representative sample of the American population with over 10,000 individuals being interviewed every year. Participants are asked to fill in a time diary describing in great details their activities in the past 24 hours. The response rate to the ATUS is typically between 52 and 58 percent (varying by year) and the BLS provides weights to correct for non-responses, which we use throughout our analysis. The interviews take place on all days of the week, beginning in January of each year and ending in December. Different respondents are surveyed each day. The day of the interview is usually chosen by the BLS interviewers, and the ATUS activity diary collects information on the activities carried out over a 24-hour period, beginning in the middle of the night. Activities must be at least 5 minutes in duration to be included. The ATUS diary also records the location of the activities.

This enables us to construct quite precise measures of when and where work was performed on a given day, for all the calendar days falling before and after the GR. Although the same individuals are not re-interviewed, it is reasonable to assume that whether individuals participated in the survey does not depend on whether the GR took place or on their work schedule, as the ATUS sample is drawn randomly by the Bureau of Labor Statistics (BLS). Using diary data to measure individual activities is a widespread practice in social sciences (Kooreman and Kapteyn, 1987; Juster and Stafford, 1991; Hamermesh, 1998 & 1999; Ramey and Francis, 2009; Krueger and Mueller, 2012; Stancanelli, Donni and Pollak, 2012). In particular, it has been shown that the decline in private work hours according to statistics from the BLS matches the drop in ATUS hours of market work between 2008 and 2010 well (Aguiar, Hurst and Karabarbounis, 2013, p. 2). Indeed, ATUS was already used in seminal work by Aguilar, Hurst and Karabarbounis (2013) to study the impact of the GR on household production, exploiting variation in the level of employment across different states for identification purposes.

The ATUS is linked to the Current Population Survey (CPS), also conducted by the BLS. In fact, the sample of ATUS respondents is a subset of respondents to the CPS.² Only one individual per household is asked to participate in the ATUS survey and fills in the activity diary. The CPS sample linked to the ATUS 2003-2016 data includes 1,008,405 individuals. The CPS asks standard questions about usual hours of work per week and earnings, as well as questions on employment, including type of job (government worker, private worker, self-employed, unpaid worker), occupation, and industry, as well as main economic activity (employment, unemployment, education, retirement, other inactive) and respondents' socio-

² The timing of the CPS and the ATUS is such that the ATUS activity diary is filled in a couple of months after having answered the CPS questionnaire. We know when individuals answered the CPS questions, and we also know when the diary was filled in.

demographic characteristics (gender, age, education, race, ethnicity, family composition, geographical location, household income). This enables us to also control for a whole range of observables in the empirical analysis of the impact of the Great Recession on when and where people work.

Additionally, we merged ATUS-CPS with data on unemployment by state taken from the Local Area Unemployment Statistics (LAUS), collected by the Bureau of Labor Statistics. In particular, we allow for a short lag between the unemployment rate and the individual behavioral responses by considering the level of the unemployment rate in the month of December of the previous year, i.e. we match to the 2009 ATUS-CPS data the state unemployment rate of December 2008.

Sample selection

We restrict the sample for analysis to individuals aged less than 70, not self-employed or in the military or in the agricultural sector.

Outcome variables

Finally, work is defined as including all hours of work, including time spent on work/related meals and activities and other income-generating activities. Additionally, as standard in this literature, work also includes time spent commuting to work (Aguilar, Hurst and Kararabarbounis, 2013; Hamermesh and Stancanelli, 2015). Additionally, we have set to missing observations that reported to work less than half an hour or more than 16.5 hours overall, which correspond respectively to the bottom and the top percentile of hours worked (1%-99%). Weekend work is defined as working on a Saturday or a Sunday; nighttime work as work carried out between 10pm and 6am, as in Hamermesh and Stancanelli (2015). Week-days and day-time work are defined as the complement. We construct a measure of work

carried out from home by considering work spells that ATUS respondent reported to have performed at home, based on the ATUS question that asked respondents “where were you during the activity”. Similarly, we construct a measure of work performed from the office, and a broad measure of work performed elsewhere. The latter includes twenty-four possible locations such as, for instance, someone else’s home, a restaurant, a bank, the post-office, the subway, an airplane, and a taxi. Moreover, we define work involving no commute as work episodes entailing a zero commute spell. The latter is sometimes used to approximate work performed from home in the literature on teleworking, which we show is not a very accurate approximation, as, on average, only 60% of workers who do not commute worked from home according to ATUS.

Explanatory variables

As far as other (explanatory) variables go, we construct a series of dummies for industry, occupation, state of residence, family composition, age, gender, education, race, marital status, presence and age of children, and so forth.

2. Methodological Approach

The literature suggests that many factors determine the hours worked without commute, or from home (versus the office or elsewhere), or night-time (versus daytime) or on weekends (versus on Monday through Friday), including technological progress, demand side factors and family composition. Here, we exploit the large and dramatic increase in unemployment resulting from the Great Recession and its cross-state variation to capture the impact of the Great Recession on when and where Americans worked. Moreover, to identify empirically the effect of the GR on, say, homeworkers from the secular trend in hours worked from home, we also control for a yearly time trend, as well as including in the regression, industry

and occupation fixed effects, and individual socio-demographics. We estimate the following empirical specification:

$$1) \quad O_i = \gamma U_{i,s,t-1} + \lambda V_i + \varrho X_i + \psi t + u_i$$

Where we define O as the individual i outcome, which includes, respectively (we shall consider these outcomes one by one): the probability of working night-time (rather than day-time), or on a weekend (versus on a week-day), or from home (versus from the office or elsewhere); and the hours worked night-time (rather than day-time), or on a weekend (versus on a week-day), or from home (versus from the office or elsewhere). Moreover, U denotes the unemployment rate of individual i 's state of residence in the year before. The vector V includes occupation and industry fixed effects while the vector X includes individual socio-demographic characteristics (gender, age, race, family composition, education level) and a dummy for residing in a metropolitan area. The yearly time trend is denoted by t . This model will be estimated by Ordinary Least Squares (specifying robust standard errors when estimating the extensive margin responses).

3. Descriptives and graphical evidence

First, we produce some preliminary descriptive evidence on the outcomes variables, covering the extensive and intensive margin of work performed at different times of the day and the week, and from different places, before, during, and after the Great Recession. Here the sample includes the population of respondents aged less than 70, not self-employed or employed in the military sector or in the agricultural or fish sector, as normally done when looking at trends in dependent employment.

Columns two and three of Table 1 illustrate that about 13% of the sample works night-time against 46% daytime, while 6% works on a weekend against 40% on a week-day. Next, it is

shown that 6% of the sample does not commute, while 9% works from home, 40% from the office and 41% from elsewhere. These hourly statistics are unconditional, i.e. computed for the sample population including individuals not working on the diary day, for whom hours are set to zero.

Columns 4 and 5 in Table 1 show corresponding figures when restricting the sample to those at work. Recall again that the survey sample was randomly drawn from the US population, while the day of the activity diary was chosen by the BLS to provide a representative picture of activities performed by Americans on week days as well as on weekend days. Since interviews were carried out continuously also on weekends or vacation days, this explains why the proportion of people reporting positive hours of paid work according to the daily diary is smaller than those reporting to be employed; it also explains why usual hours of work are somewhat larger on average than the hours worked on the diary day. Conditional on being employed, almost everyone works daytime, on a week-day and from the office. However, 27% of the workers perform their work nighttime, between 10pm and 6am, 14% on a weekend day, 13% without commuting and 20% from home. Moreover, perhaps surprisingly 87% of those employed do some work elsewhere than at office or at home. These states are not exclusive, someone may spend part of the day working from the office and then commute home and work on the train and continue to do some work once they reach home. Similarly, it is possible to perform some work daytime and then continue to work when the night falls. However, since ATUS respondents only fill a 24 hours diary, individuals are only observed on a given week or weekend day.

The bottom rows of Table 1 illustrate the intensive margins, i.e. the hours worked, indicating that on average, conditional on being employed, individuals work over eight hours per day (last two columns of the bottom part of Table 1). Those that work at least partly nighttime

perform on average three hours of work between 10pm and 6am; while those that work on a weekend, work on average almost seven hours per day, against almost nine hours for daytime workers. Work spells that do not entail any commute time average about six hours per day. Moreover, on average, eight hours per day are worked from the office, almost four hours from home and two and half hours from somewhere else than home or the office, which is pretty remarkable.

The earlier literature that has studied telecommuting has focused on work performed from home or without commute, while work performed elsewhere has not been explicitly considered before. Table 2 shows that when considering spells of work without commute, most of these hours are worked from home (almost three hours) or from the office³ (three hours), and about half an hour is worked on average elsewhere, again without commuting. Moreover, those that work from home, work on average almost four hours from home, almost three hours from the office and almost an hour from elsewhere.

Next, we collapse the ATUS-CPS sample by year and we plot employment, unemployment and work of the different sorts considered here against the year, distinguishing the years before the GR, during and after. Figure 1 left panel illustrates the sharp drop in usual hours of work (as reported in the CPS data) during the GR and it also shows that hours have not resumed yet to their usual levels. These are average yearly hours unconditional on employment, and thus, capture the loss of jobs due to the recession. The hours worked on the diary day also follow a similar pattern.

Figure 2 shows that while daytime and weekday hours have declined during the GR, weekend hours or nighttime hours remained pretty flat. This can potentially been explained by the secular rise in work performed nighttime or at weekend schedule, which would then

³ The office is presumably located within the home, as these workers report zero commute time to work in the diary day.

hide/counter the drop in hours worked at these schedules due to the recession. Our econometric estimates will shed more light on this issue but controlling for both a time trend and the GR (as captured the dramatic increase in unemployment rates across state), as well as industry and occupation.

Figure 3 depicts the trends in hours worked from the office, from home or elsewhere, and hours without commute. It is shown that while hours worked from the office have declined during the GR, the same is not true for hours worked from home, elsewhere, or without commute. This may be due to the secular rise in telework well documented in the pre-recession literature. The estimates of the econometric model will shed more light on this issue. Finally, the large variation in the unemployment rate is illustrated in Figure 4, which shows the average unemployment rate across states.

Results of estimation

Our methodological approach is empirical. Like in Aguiar, Hurst and Karabarbounis (2013) who examined the impact of the GR on household production, we exploit the large variation in unemployment rates across states⁴ to capture the impact of the Great Recession on when and where Americans work and distinguish it from that of the secular increase in certain forms of work, as picked by a year trend. The results of estimation of the model for hours worked on different schedules conditional on working a positive number of hours are presented in Table 3, while those for unconditional hours in Table 4. For the sake of conciseness we only show the estimated coefficients on the unemployment rate and the year trend. All the models include state fixed effects. We first show the estimates including only the state fixed effects (models a of Table 3, and d of Table 4, respectively); next, additionally

⁴ While Aguiar, Hurst and Karabarbounis (2013) aggregated the individual ATUS data by state and over periods of 2 years up to 2010, we have now available a longer time series of data and we thus, control for a year trend in addition to including a measure of the state unemployment rate, together with state, industry and occupation fixed effects, as well as individual socio-demographics.

controlling for socio-demographics (models b in Table 3, and e in Table 4, respectively); and finally, also including industry and occupation fixed effects (models c in Table 3, and f in Table 4, respectively). Robustness checks are presented in Table 5, clustering the standard errors at the state level (model g of Table 5), or dropping observations on respondents residing in Michigan, which was among among the states that experienced the largest jump in unemployment rates during the Great Recession (model h in Table 5); or dropping observations for workers in the information sector, which is the industry with one of the largest shares of teleworkers (model i in Table 5). Due to the large number of outcomes considered, some estimates could turn out significant spuriously, and we test for this possibility by running a Roman-Wolf step-down test, which produces corrected p-values of the estimates of the effect of GR on the outcomes considered, based on 250 sample replications. These are shown in Table 6 and confirm the significance of the impact of the GR on hours work from home or elsewhere. Table 7 summarizes the estimates for the coefficient of interest when taking the logarithm of the outcomes (top panel of Table 7) or specifying the outcomes in terms of shares of total hours worked on the diary day (bottom panel of Table 7). Heterogeneity of outcomes is dealt with next, and the results of estimation of the model when the sample is split by gender, education, and migrant status are presented in Table 8. Graphical illustration of the results for the coefficients of interest is given in Figures 5, 6, and 7, respectively, for conditional hours worked at different times, days, and places –while similar set of results for the unconditional estimates can be found in Tables A, B, and C, in the Appendix to the paper. Figures 8, 9 and 10 show graphically the results from estimation of the models run separately for men and women.

We find that an increase in the unemployment rate leads to a significant drop in usual hours worked, also for those still employed (Table 3). The size of the effect is very moderate though, as on average one percentage point increase in the unemployment rate leads to a

reduction in usual hours worked equal to about 2.5 minutes per day, and thus 12.5 minutes per week (Table 3, model c). This corresponds to a decline in usual hours worked of about 0.5 per cent, on average. The size of the unconditional effect is almost twice as large and equal to a drop in hours worked of over twenty minutes per week in response to one percentage point increase in the unemployment rate on average (Table 4, model f). The year trend in usual hours worked is significantly negative and much smaller –it is about one fourth the size of the effect of the unemployment rate on usual hours worked.

We find that hours worked daytime, on a week day and from the office drop significantly, though the sizes of such effects are all very small. In contrast, hours worked nighttime did not vary significantly with the GR, while those worked on weekends increased significantly, and so did hours worked from home and from elsewhere than the office. These facts hold true controlling for demographics (model b in Table 3) and industry and occupation fixed effects (model c in Table 3). Overall, considering our preferred specification that includes all the controls (model c in Table 3), hours worked from the office drop, on average, by almost 0.5 per cent with one percentage point increase in the unemployment rate, while hours worked from home increase by almost 1.5 per cent and hours worked elsewhere by 2 per cent.

However, when considering unconditional hours, the effect of the unemployment rate on working from home or elsewhere than the office becomes statistically insignificant. This holds true both when including or excluding individual socio-demographic characteristics and industry and occupation fixed effects. This may suggest that it is only for those who kept their job that hours worked from home and from elsewhere increased due to the GR. And this could potentially contribute to explaining the increased productivity of labor observed during the GR ((Lazear, Shaw and Stanton, 2016).

Robustness checks

These findings are overall robust to various specification checks, such as clustering the standard errors (model g of Table 5), dropping observations from states that experienced the largest employment shocks, such as Michigan (model h of Table 5), or dropping observations on workers employed in industries with the largest number of teleworkers, such as the information industry (model i of Table 5). While the effect of the unemployment rate on hours worked from home loses significance for some of these robustness checks (specifically, in models g and i of Table 5), the unemployment impact on hours worked elsewhere remains statistically significant under all these set ups.

We test for the possibility that our estimates of the impact of unemployment rate variation on the timing, the day and the place of work are only spuriously significant by implementing a Romano-Wolf test (Romano and Wolf, 2005). We re-estimate the main model (model c in Table 3), unweighted⁵, and with 250 replication of the sample data. The Romano-Wolf step-down p-values of the estimates of the effect of GR on the outcomes considered are shown in Table 6 alongside the p-values from our preferred model, and confirm the significance of the impact of the GR on hours worked from home or elsewhere. In contrast, the weekday and weekend effect of the GR become statistically insignificant based on this test.

Finally, we also checked the robustness of our conclusions to taking the logarithm of the outcome variables, or by specifying the outcomes in terms of their share of the total daily hours worked. The estimates of interest under these two alternative set ups are shown in Table 7. The results of estimation are consistent for hours worked elsewhere, which increase significantly with unemployment under either specification. However, the effect of the unemployment rate on hours worked from home loses statistical significance.

Heterogeneity of responses

⁵ We do not apply weights as the standard version of Romano-Wolf we implement does not take weights.

The heterogeneity of responses by gender, education and migrant status, is explored next and the results of estimations for the corresponding subgroups of the population are shown in Table 8. First of all, the drop in usual hours of work is twice as large for men than for women (first panel of Table 8). The increase in hours worked from home though is statistically insignificant for men. Restricting the sample to women leads to more precise and larger estimates of the effect of unemployment rates on the hours worked from home. In contrast, hours worked elsewhere increase significantly for both men and women and the size of the effect is very similar by gender. Splitting the sample by gender (first panel of Table 8) also reveals a strongly significant increase in nighttime work for men, but not so for women, for whom nighttime work is not impacted by the GR. Weekend work increases weakly with the level of the unemployment rate for women, but this effect is not statistically significant for men. It appears therefore there is a significant gendered and stereotypical impact of the unemployment rate on the place and the time of work, with women working significantly more on a weekend and from home and men working significantly more nighttime.

Regarding heterogeneity of responses to the GR by education level (second panel in Table 8), the college-educated are found to work significantly longer nighttime and from elsewhere than those with less education, who in turns are more likely to work from home.

Comparing first generation migrants with others (third panel in Table 8), reveals that only the latter significantly increase hours worked nighttime in response to the GR, while the increase in hours worked from home and elsewhere is statistically significant only for the non-immigrants. Moreover, separating the two estimation samples improves the precision of the estimates.

Conclusions

The Great Recession has dramatically impacted the American labor market. Many jobs were lost and the recovery is not yet completed. Earlier work suggests that labor productivity has increased. Here we investigate how the GR impacted when and where Americans work, by exploiting the wealth of information on daily activities provided by the American Time Use Survey. This survey also asks where activities were performed. We can therefore measure work done from home or from the office or elsewhere; as well as work performed nighttime versus daytime, or on week days versus weekend days. These data were matched to local area unemployment statistics (LAUS) to exploit the large variation in state unemployment rates induced by the GR to capture the effect of the GR on work done nighttime, on weekends, or from home, and disentangle it from the secular rise in certain forms of work, such as telecommuting. Moreover, the ATUS data are linked to CPS data by the Bureau of Labor Statistics and thus we are able to control in our regressions for industry and occupation fixed effects, in addition to individual socio-demographic characteristics. Our data span a 14 year period, from 2003 to 2016 and we include a year time trend in the model, to pick up the secular trend in, respectively, nighttime (versus daytime) work, week (versus weekend) day, or from home (versus from the office or elsewhere).

We conclude that the GR significantly reduced hours of work performed daytime, on week days and from the office, while hours of work done from home and elsewhere than the office did significantly increase, conditional on employment. These conclusions are robust to clustering the standard errors at the state level, or dropping states that experienced the largest employment shocks, or industry with the largest incidence of teleworking. On average, one percentage point increase in the unemployment rate resulted in a decline in hours worked from the office of almost 0.5 per cent, an increase in hours worked from home of almost 1.5 per cent and in hours worked elsewhere of over 2 per cent. These small increases in hours worked at home or from a restaurant, bus, train, or taxi, and so forth, may perhaps explain part

of the increase in labor productivity due to the great recession found in other work, which argued that workers may have increased work effort for fear of losing their job.

While the size of our estimates is not very large, hours worked on weekends, night-time, from home and elsewhere may well impact individual well-being. In particular, there is evidence that work done nighttime or on weekends may negatively impact social life and overall well-being. Work from home may lead to work-family conflict and stress, and the latter may also apply to work done on transportation and restaurants.

We also find considerable heterogeneity of responses by gender, education and migrant status. In particular, hours worked from home increased with the Great Recession especially for women, while nighttime worked rose for men and migrants. Hours worked from elsewhere than home or the office increased strongly for college educated, but not significantly so for those with lesser education level.

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Table 1. Descriptive statistics of the timing and the place of work.

<i>Extensive margin</i>	<i>Unconditional</i>		<i>Conditional on working on the diary day</i>			
	<i>Mean</i>	<i>St. Deviation n</i>	<i>Mean</i>	<i>St. Deviation</i>		
Unemployment rate	6.56	2.07	6.49	2.07		
Employed (CPS)	0.65	0.48	0.97	0.17		
Works on diary day	0.47	0.50	1	0		
Daytime work	0.46	0.50	0.99	0.08		
Night-time work	0.13	0.33	0.27	0.44		
Weekday work	0.40	0.49	0.86	0.34		
Weekend work	0.06	0.24	0.14	0.35		
Works from the office	0.40	0.49	0.87	0.33		
Works without commute	0.06	0.23	0.13	0.33		
Works from home	0.09	0.29	0.20	0.40		
Works elsewhere	0.41	0.49	0.88	0.32		
<i>Observations</i>	<i>142673</i>		<i>5590</i>			
<i>Intensive margin</i>	<i>Unconditional</i>		<i>Conditional on working on the diary day</i>		<i>Conditional on positive hours for that work schedule</i>	
	<i>Mean</i>	<i>St. Deviation</i>	<i>Mean</i>	<i>St. Deviation</i>	<i>Mean</i>	<i>St. Deviation</i>
<i>Hours per day</i>						
Usual work hours (CPS)	5.09	4.28	7.89	3.90	8.25	2.33
Diary-day hours	3.87	4.63	8.32	3.03	8.32	3.03
Daytime hours	3.64	4.41	7.80	3.04	8.04	2.78
Night-time hours	0.23	0.96	0.48	1.36	2.82	2.31
Weekday hours	3.45	4.57	7.36	3.98	8.72	2.64
Weekend hours	0.39	1.80	0.84	2.55	6.79	3.55
Hours worked from the office	3.16	4.16	6.71	3.58	7.96	2.29
Hours without commute	0.32	1.57	0.69	2.23	6.04	3.45
Hours worked from home	0.23	1.15	0.49	1.64	3.84	3.04
Hours worked elsewhere	0.43	1.16	0.92	1.55	2.38	2.34
Note: The sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Analysis sample, weighted statistics.						

Table 2. Descriptive statistics of the timing and the place of work.

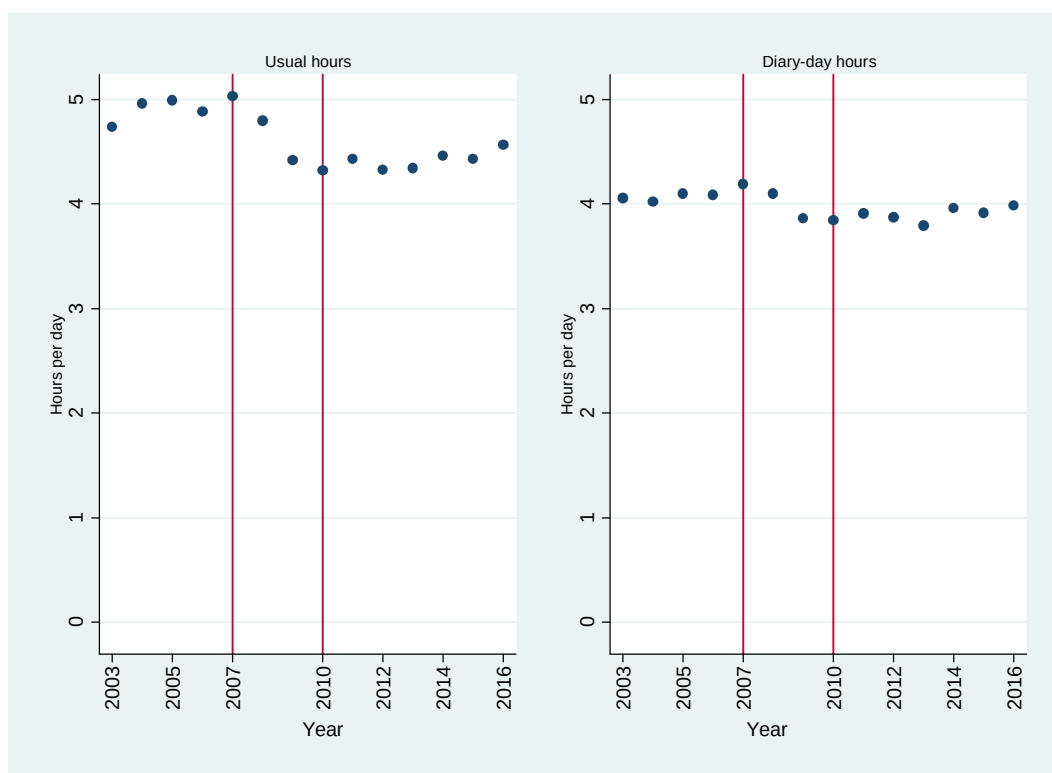
Table 2. Descriptive statistics of the timing and the place of work.

<i>Intensive margin</i>	Workers that do not commute		Workers that work from home		Workers that work from the office	
<i>Hours per day</i>	Mean	St. Deviation	Mean	St. Deviation	Mean	St. Deviation
Usual work hours (CPS)	7.35	3.68	7.86	3.89	7.85	2.74
Diary-day hours	6.04	3.45	7.31	4.09	8.88	2.44
Daytime hours	5.60	3.38	6.91	3.94	8.35	2.52
Night-time hours	0.44	1.20	0.40	0.94	0.53	1.44
Weekday hours	4.96	4.11	6.33	4.84	8.06	3.52
Weekend hours	1.10	2.42	0.99	2.41	0.82	2.61
Hours worked from the office	2.98	4.00	2.79	3.83	7.96	2.29
Hours worked without commute	6.04	3.45	2.64	3.58	0.40	1.81
Hours worked from home	2.71	3.49	3.84	3.05	0.15	0.66
Hours worked elsewhere	0.34	1.63	0.68	1.50	0.77	0.86
<i>Observations</i>	7901		8442		45905	

<i>Extensive margin</i>	Works without commute		Works from home		Works from the office	
	Mean	St. Deviation	Mean	St. Deviation	Mean	St. Deviation
Daytime work	0.97	0.16	0.99	0.11	0.99	0.06
Night-time work	0.23	0.42	0.30	0.46	0.28	0.45
Weekday work	0.70	0.46	0.79	0.41	0.90	0.31
Weekend work	0.30	0.46	0.21	0.41	0.10	0.31
Work from the office	0.36	0.48	0.55	0.50	1	0
Work without commute	1	0	0.40	0.49	0.05	0.22
Work from home	0.62	0.49	1	0	0.12	0.33
Work elsewhere	0.07	0.26	0.60	0.49	0.94	0.23
<i>Observations</i>	9040		13009		46306	

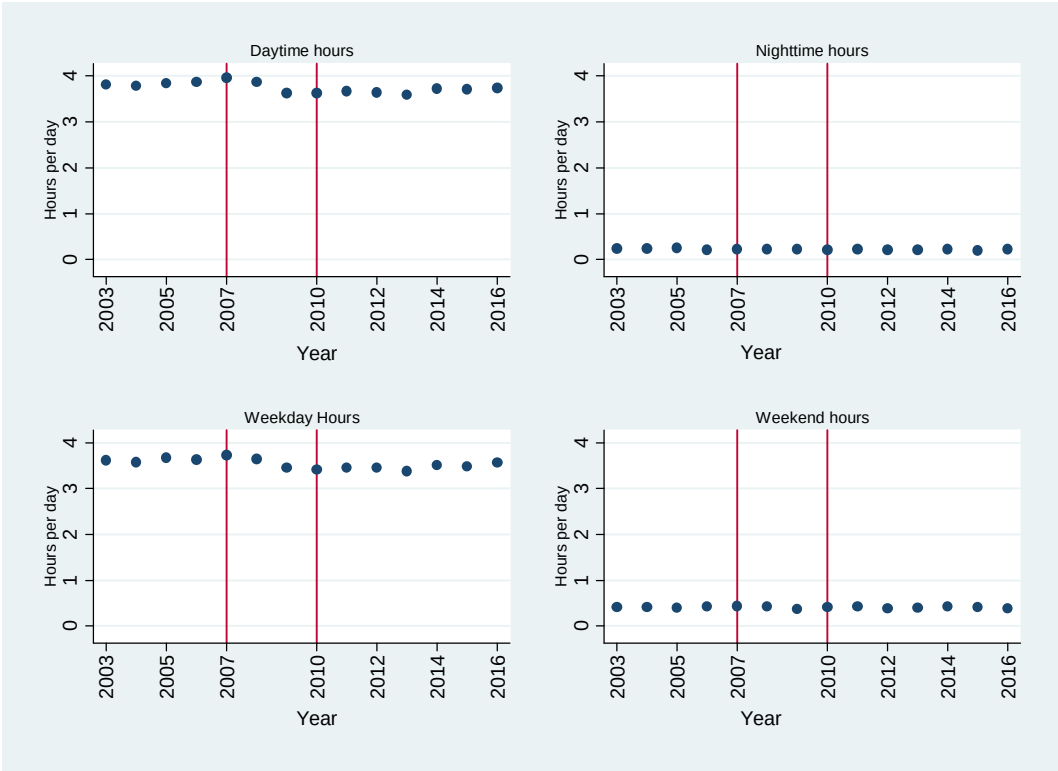
Note: The totals do not match those in Table 1 as these categories are not exclusive.
The sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Analysis sample, weighted statistics.

Figure 1. Trends in daily hours of work: CPS usual hours and ATUS diary-day hours



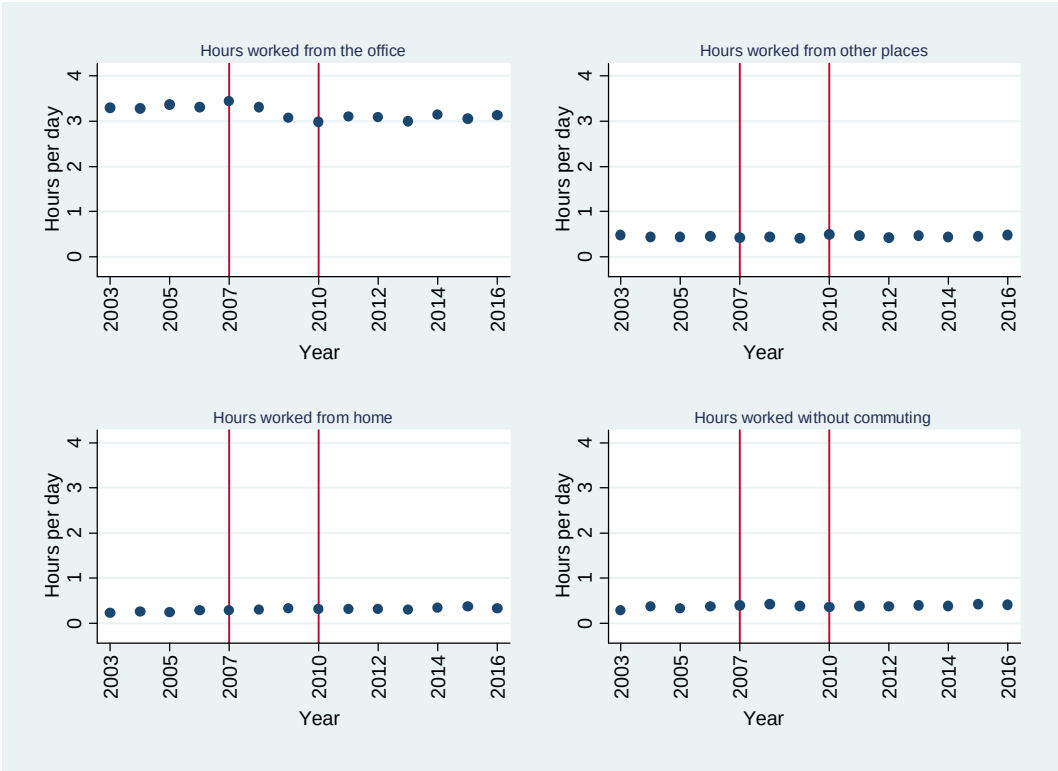
Note: The points in the figures represent the raw data on the yearly average hours per day, unconditional, i.e. including individuals out of work for whom hours are set to zero. The sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Analysis sample, weighted statistics.

Figure 2. Trends in weekend versus weekday hours and daytime versus night-time hours



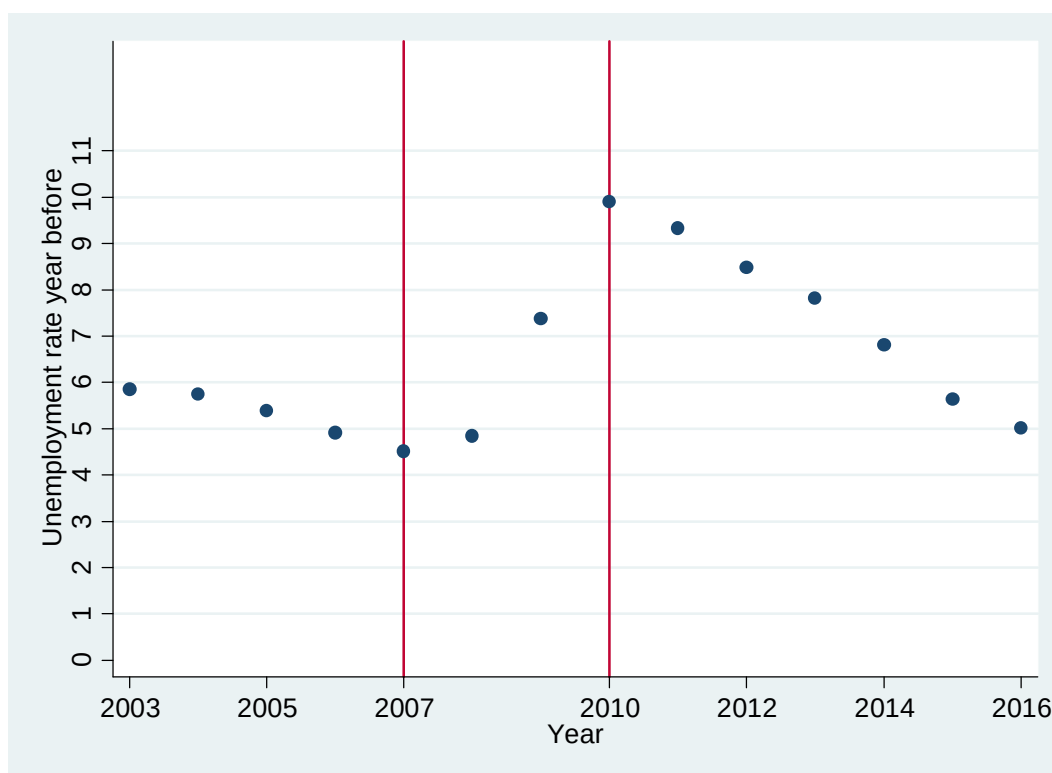
Note: The points in the figures represent the raw data on the yearly average hours per day, unconditional, i.e. including individuals out of work for whom hours are set to zero. The sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Analysis sample, weighted statistics.

Figure 3. Trends in hours worked from the office, home, or elsewhere, and without commute.



Note: The points in the figures represent the raw data on the yearly average hours per day, unconditional, i.e. including individuals out of work for whom hours are set to zero. The sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Analysis sample, weighted statistics.

Figure 4. Unemployment rate

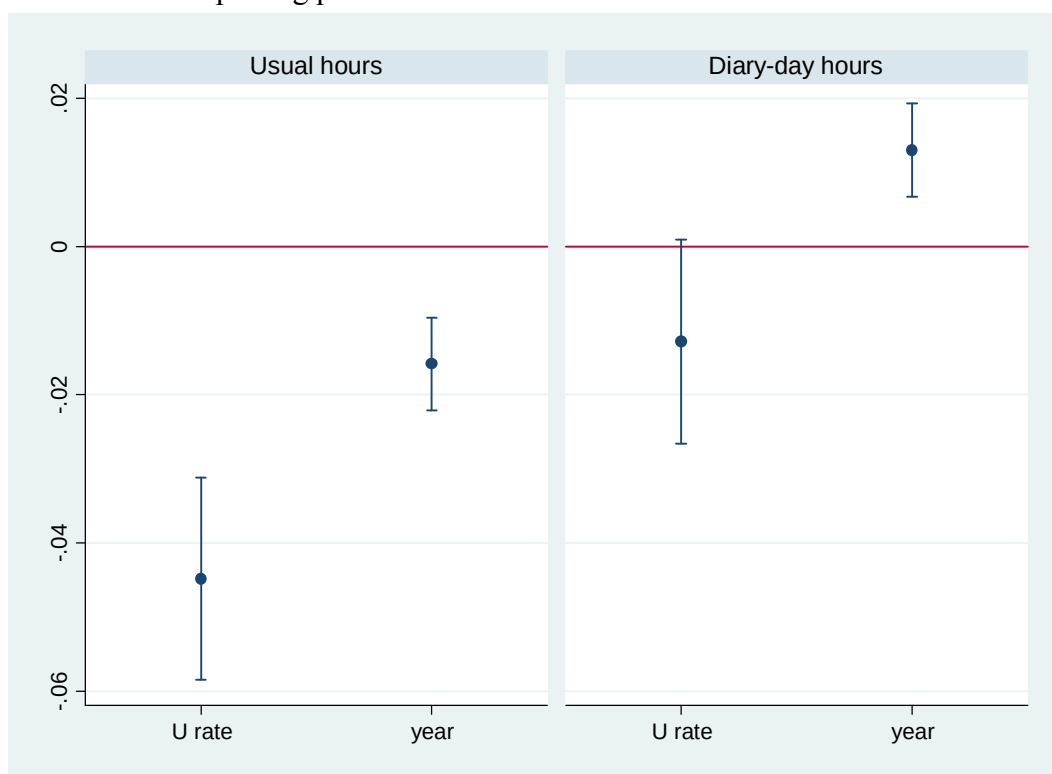


Note: The points in the figures represent the yearly average level of unemployment across states, as measured at December of the year before.

The sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector.

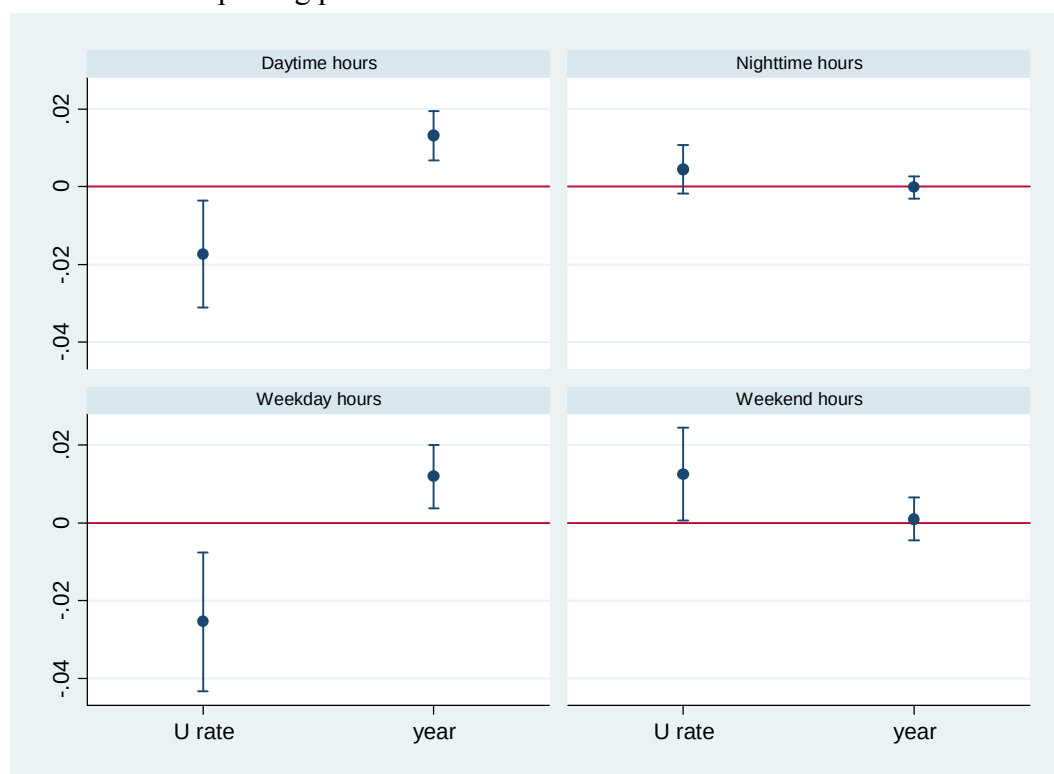
Analysis sample, weighted statistics.

Figure 5. Results of estimation of the econometric model for usual hours and diary hours, conditional on reporting positive hours of work.



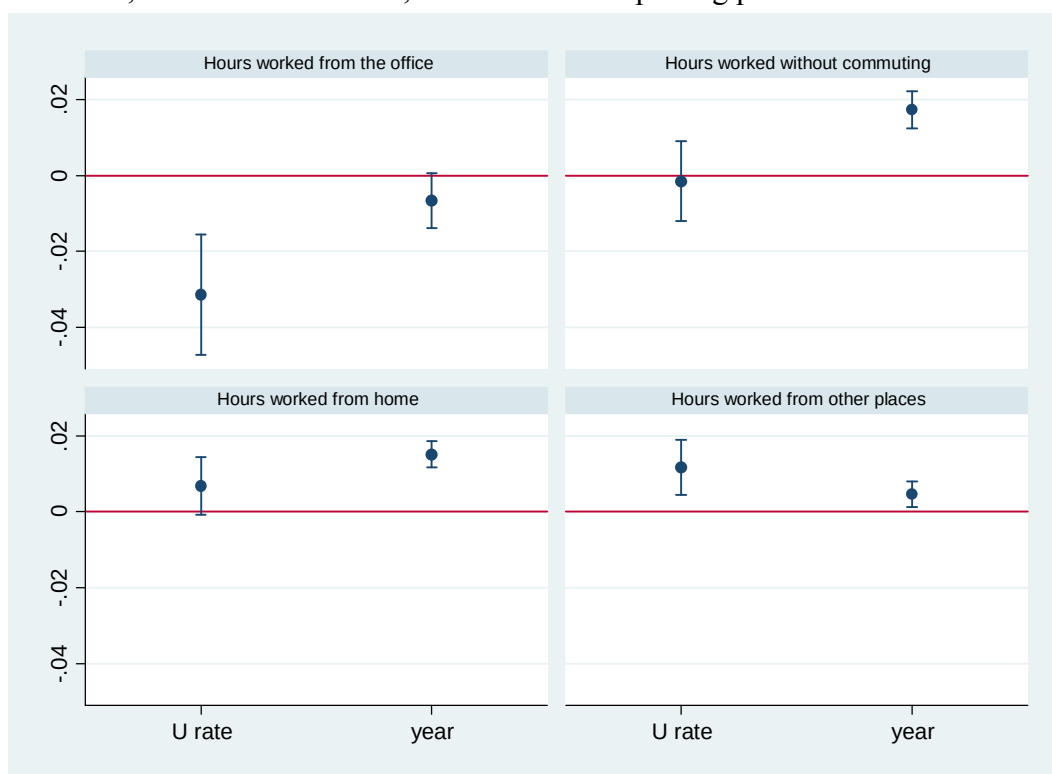
Note: selected estimates from the results of estimation of model c in Table 3. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

Figure 6. Results of estimation of the model for week, weekend, daytime or nighttime hours, conditional on reporting positive hours of work.



Note: selected estimates from the results of estimation of model c in Table 3. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

Figure 7. Results of estimation of the model for hours worked from the office, from home or elsewhere, or without commute, conditional on reporting positive hours of work



Note: selected estimates from the results of estimation of model c in Table 3. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

Table 3. Results of estimation of the impact of the Great Recession on hours worked (conditional on working a positive number of hours)

Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
<i>Raw Means(hrs per day)</i>	7.89	8.32	7.80	0.48	7.36	0.84	6.71	0.69	0.49	0.92
Model a	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
U rate	-0.0346*** (0.00731)	-0.0106 (0.00726)	-0.0131* (0.00724)	0.00247 (0.00329)	-0.0199** (0.00938)	0.00930 (0.00618)	-0.0299*** (0.00829)	-0.00179 (0.00539)	0.00841** (0.00395)	0.0109*** (0.00373)
year trend	-0.00980*** (0.00332)	0.0148*** (0.00330)	0.0158*** (0.00329)	-0.00103 (0.00149)	0.0139*** (0.00426)	0.000882 (0.00281)	-0.0100*** (0.00377)	0.0184*** (0.00245)	0.0193*** (0.00179)	0.00549*** (0.00170)
State fixed effects	X	X	X	X	X	X	X	X	X	X
<i>Observations</i>	55,616	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900
<i>Rsquared</i>	0.003	0.003	0.003	0.004	0.002	0.001	0.003	0.003	0.005	0.004
Model b										
U rate	-0.0413*** (0.00687)	-0.0136* (0.00707)	-0.0170** (0.00708)	0.00345 (0.00325)	-0.0257*** (0.00918)	0.0121** (0.00615)	-0.0308*** (0.00816)	-0.00328 (0.00538)	0.00615 (0.00390)	0.0111*** (0.00372)
year trend	-0.0155*** (0.00314)	0.0130*** (0.00323)	0.0115*** (0.00324)	0.00147 (0.00149)	0.00925** (0.00420)	0.00371 (0.00281)	-0.00680* (0.00373)	0.0178*** (0.00246)	0.0155*** (0.00178)	0.00424** (0.00170)
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
<i>Observations</i>	55,616	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900
<i>Rsquared</i>	0.121	0.056	0.049	0.029	0.047	0.012	0.037	0.009	0.030	0.011
Model c										
U rate	-0.0425*** (0.00684)	-0.0128* (0.00702)	-0.0174** (0.00702)	0.00453 (0.00319)	-0.0254*** (0.00910)	0.0126** (0.00609)	-0.0314*** (0.00808)	-0.00154 (0.00536)	0.00683* (0.00386)	0.0117*** (0.00371)
year trend	-0.0154*** (0.00313)	0.0130*** (0.00322)	0.0131*** (0.00321)	-0.000170 (0.00146)	0.0119*** (0.00417)	0.00105 (0.00279)	-0.00666* (0.00370)	0.0173*** (0.00246)	0.0151*** (0.00177)	0.00455*** (0.00170)
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
Industry & occupation	X	X	X	X	X	X	X	X	X	X
<i>Observations</i>	55,616	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900
<i>Rsquared</i>	0.131	0.071	0.067	0.067	0.065	0.033	0.018	0.052	0.058	0.019

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10 . hrs stands for (daily) hours worked.

Table 4. Results of estimation of the impact of the Great Recession on hours worked unconditional, setting hours to zero for those not working (on diary-day)

Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
<i>Raw Means (hrs per day)</i>	5.09	3.87	3.64	0.23	3.45	0.39	3.16	0.32	0.23	0.43
Model d	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
U rate	-0.0759*** (0.00631)	-0.0450*** (0.00689)	-0.0436*** (0.00655)	-0.0436*** (0.00655)	-0.00114 (0.00142)	-0.0447*** (0.00676)	-0.0456*** (0.00613)	-0.00405* (0.00233)	0.00153 (0.00170)	0.000501 (0.00171)
year trend	-0.0280*** (0.00289)	-0.00825*** (0.00316)	-0.00684** (0.00300)	-0.00684** (0.00300)	-0.00145** (0.000652)	-0.00748** (0.00310)	-0.0171*** (0.00281)	0.00730*** (0.00107)	0.00811*** (0.000779)	0.000924 (0.000784)
State fixed effects	X	X	X	X	X	X	X	X	X	X
<i>Observations</i>	144,790	142,673	142,857	142,857	144,677	144,318	144,802	143,633	143,736	144,286
<i>Rsquared</i>	0.007	0.003	0.003	0.003	0.002	0.003	0.003	0.001	0.002	0.002
Model e										
U rate	-0.0756*** (0.00551)	-0.0446*** (0.00650)	-0.0430*** (0.00619)	-0.00140 (0.00141)	-0.0439*** (0.00642)	-2.99e-06 (0.00266)	-0.0457*** (0.00586)	-0.00397* (0.00232)	0.00182 (0.00169)	0.000680 (0.00169)
year trend	-0.0258*** (0.00254)	-0.00752** (0.00300)	-0.00716** (0.00285)	-0.000420 (0.000651)	-0.00754** (0.00296)	-0.000319 (0.00123)	-0.0148*** (0.00270)	0.00737*** (0.00107)	0.00687*** (0.000776)	0.000516 (0.000780)
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
<i>Observations</i>	144,790	142,673	142,857	144,677	144,318	143,768	144,802	143,633	143,736	144,286
<i>Rsquared</i>	0.242	0.113	0.111	0.020	0.101	0.006	0.091	0.009	0.022	0.026
Model f										
U rate	-0.0746*** (0.00495)	-0.0428*** (0.00623)	-0.0414*** (0.00592)	-0.00115 (0.00140)	-0.0427*** (0.00621)	0.000519 (0.00264)	0.000854 (0.00168)	-0.00360 (0.00231)	0.00198 (0.00167)	0.000854 (0.00168)
year trend	-0.0183*** (0.00229)	-0.00175 (0.00287)	-0.00101 (0.00273)	-0.000774 (0.000644)	-0.00183 (0.00286)	-0.000290 (0.00122)	0.00119 (0.000773)	0.00734*** (0.00107)	0.00672*** (0.000770)	0.00119 (0.000773)
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
Industry & occupation	X	X	X	X	X	X	X	X	X	X
<i>Observations</i>	144,790	142,673	142,857	142,857	144,677	144,318	143,736	143,768	143,633	144,286
<i>Rsquared</i>	0.388	0.187	0.188	0.188	0.042	0.161	0.039	0.025	0.015	0.045

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10 . hrs stands for (daily) hours worked.

Table 5. Results of estimation of the impact of the Great Recession on hours worked, conditional on working a positive number of hours. Robustness checks.

Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
Raw Means (hrs per day)	7.89	8.32	7.80	0.48	7.36	0.84	6.71	0.69	0.49	0.92
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Model g, standard errors clustered at state level										
U rate	-0.0425***	-0.0128	-0.0174*	0.00453	-0.0254*	0.0126*	-0.0314***	-0.00154	0.00683	0.0117**
	(0.0136)	(0.00842)	(0.00895)	(0.00369)	(0.0129)	(0.00641)	(0.0104)	(0.0118)	(0.00805)	(0.00440)
year trend	-0.0154***	0.0130**	0.0131***	-0.000170	0.0119*	0.00105	-0.00666	0.0173***	0.0151***	0.00455**
	(0.00425)	(0.00497)	(0.00447)	(0.00217)	(0.00683)	(0.00310)	(0.00455)	(0.00367)	(0.00237)	(0.00224)
Observations	55,616	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900
Rsquared	0.131	0.071	0.067	0.067	0.065	0.033	0.058	0.018	0.052	0.019
Model h, dropping respondents from Michigan from the sample										
U rate	-0.0389***	-0.00899	-0.0134*	0.00444	-0.0182*	0.00919	-0.0282***	-0.00273	0.00711*	0.0121***
	(0.00704)	(0.00723)	(0.00723)	(0.00327)	(0.00937)	(0.00627)	(0.00832)	(0.00553)	(0.00399)	(0.00383)
year trend	-0.0160***	0.0123***	0.0128***	-0.000410	0.0105**	0.00187	-0.00781**	0.0185***	0.0160***	0.00417**
	(0.00320)	(0.00328)	(0.00328)	(0.00148)	(0.00426)	(0.00285)	(0.00378)	(0.00251)	(0.00181)	(0.00174)
Observations	53,661	53,934	53,934	53,934	53,934	53,934	53,934	53,934	53,934	53,934
Rsquared	0.131	0.071	0.068	0.067	0.066	0.033	0.058	0.018	0.053	0.019
Model i, dropping respondents employed in the information industry from the sample										
U rate	-0.0426***	-0.0137*	-0.0187***	0.00494	-0.0257***	0.0120*	-0.0306***	-0.00258	0.00592	0.0109***
	(0.00694)	(0.00711)	(0.00711)	(0.00324)	(0.00923)	(0.00619)	(0.00818)	(0.00541)	(0.00387)	(0.00374)
year trend	-0.0149***	0.0135***	0.0135***	-3.93e-05	0.0124***	0.00109	-0.00545	0.0176***	0.0145***	0.00445***
	(0.00318)	(0.00326)	(0.00325)	(0.00148)	(0.00423)	(0.00283)	(0.00374)	(0.00248)	(0.00177)	(0.00171)
Observations	54,177	54,457	54,457	54,457	54,457	54,457	54,457	54,457	54,457	54,457
Rsquared	0.131	0.072	0.068	0.068	0.066	0.033	0.058	0.018	0.051	0.019

Note: All the models include individual socio-demographics and state, industry and occupation fixed effects, as in model c of Table 3, which is our preferred specification.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10 .

hrs stands for (daily) hours worked.

Table 6-. Results of estimation of the impact of the Great Recession on hours worked, conditional on working a positive number of hours. Robustness check: Romano-Wolf step-down p-values.

Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Weighted estimates (Model c in Table 3)										
U rate	-0.0425*** (0.00684)	-0.0128* (0.00702)	-0.0174** (0.00702)	0.00453 (0.00319)	-0.0254*** (0.00910)	0.0126** (0.00609)	-0.0314*** (0.00808)	-0.00154 (0.00536)	0.00683* (0.00386)	0.0117*** (0.00371)
year trend	X	X	X	X	X	X	X	X	X	X
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
Industry & occupation	X	X	X	X	X	X	X	X	X	X
Observations	55,616	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900
Unweighted estimates										
U rate	-0.0451*** (0.00711)	-0.00718 (0.00793)	-0.0129 (0.00791)	0.00570* (0.00341)	-0.0234** (0.0109)	0.0163** (0.00823)	-0.0301*** (0.00892)	0.000903 (0.00564)	0.0101** (0.00416)	0.0127*** (0.00390)
P-value	0.0000	0.3652	0.0942	0.1037	0.0314	0.0482	0.0008	0.8728.	0.0147	0.0011
P-value Romano-Wolf	0.0000	0.593	0.3426	0.3426	0.1673	0.2191	0.0080	0.8924	0.0956	0.0120
year trend	X	X	X	X	X	X	X	X	X	X
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
Industry & occupation	X	X	X	X	X	X	X	X	X	X
Observations	55,616	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10 . hrs stands for (daily) hours worked.

Table 7. Results of estimation of the impact of the Great Recession on hours worked, conditional on working a positive number of hours. Robustness check: alternative specifications of the outcomes

Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Outcomes specified in logarithmic form										
Mean outcomes	3.609	3.375	3.317	1.68	3.597	2.85	2.388	1.766	3.570	1.0868
U rate	-0.00191**	-0.00353**	-0.00458***	0.0111**	-0.00476***	0.00436	-0.00285**	0.00338	0.00500	0.00643**
	(0.000880)	(0.00140)	(0.00149)	(0.00494)	(0.00140)	(0.00367)	(0.00116)	(0.00543)	(0.00668)	(0.00260)
year trend	-0.000375	0.00260***	0.00287***	-0.00398*	0.00249***	0.00108	0.00190***	0.0131***	0.0130***	0.00529***
	(0.000402)	(0.000643)	(0.000685)	(0.00225)	(0.000638)	(0.00171)	(0.000526)	(0.00255)	(0.00313)	(0.00118)
State fixed effects	X	X	X	X	X	X	X	X	X	X
Socio-demographics	X	X	X	X	X	X	X	X	X	X
Industry & occupation	X	X	X	X	X	X	X	X	X	X
Observations	52,331	55,900	55,342	15,246	40,616	15,284	46,306	9,040	13,009	47,323
Rsquared	0.167	0.046	0.043	0.077	0.068	0.161	0.044	0.087	0.062	0.061
Outcomes specified as shares of total daily diary hours										
Mean outcomes		100	93.628	6.371	71.784	28.215	70.954	18.568	15.992	13.053
U rate			-0.0131	0.0131	-0.149*	0.149*	-0.346***	0.00132	0.117*	0.229***
			(0.0376)	(0.0376)	(0.0811)	(0.0811)	(0.0751)	(0.0789)	(0.0634)	(0.0510)
year trend			0.00748	-0.00748	0.0102	-0.0102	-0.184***	0.181***	0.163***	0.0214
			(0.0172)	(0.0172)	(0.0371)	(0.0371)	(0.0344)	(0.0361)	(0.0290)	(0.0234)
State fixed effects			X	X	X	X	X	X	X	X
Socio-demographics			X	X	X	X	X	X	X	X
Industry & occupation			X	X	X	X	X	X	X	X
Observations			55,900	55,900	55,900	55,900	55,900	55,900	55,900	55,900
Rsquared			0.058	0.058	0.024	0.024	0.056	0.025	0.062	0.019

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10 . hrs stands for (daily) hours worked.

Table 8. Results of estimation of the impact of the Great Recession on hours worked, conditional on working a positive number of hours. Heterogeneity of outcomes.

Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Women										
U rate	-0.0200** (0.00925)	-0.00731 (0.00957)	-0.00504 (0.00952)	-0.00227 (0.00402)	-0.0210* (0.0122)	0.0137* (0.00805)	-0.0300*** (0.0110)	0.00180 (0.00710)	0.0107** (0.00541)	0.0120** (0.00475)
year trend	-0.0147*** (0.00426)	0.0147*** (0.00440)	0.0130*** (0.00438)	0.00168 (0.00185)	0.0117** (0.00560)	0.00303 (0.00370)	-0.00674 (0.00507)	0.0177*** (0.00327)	0.0159*** (0.00249)	0.00559** (0.00219)
Observations	28,079	28,175	28,175	28,175	28,175	28,175	28,175	28,175	28,175	28,175
Rsquared	0.118	0.063	0.064	0.052	0.068	0.040	0.062	0.021	0.048	0.017
Men										
U rate	-0.0640*** (0.00994)	-0.0181* (0.0102)	-0.0287*** (0.0102)	0.0106** (0.00490)	-0.0302** (0.0135)	0.0121 (0.00912)	-0.0324*** (0.0117)	-0.00535 (0.00800)	0.00281 (0.00551)	0.0115** (0.00567)
year trend	-0.0154*** (0.00454)	0.0114** (0.00465)	0.0132*** (0.00467)	-0.00173 (0.00224)	0.0120* (0.00614)	-0.000539 (0.00416)	-0.00669 (0.00535)	0.0164*** (0.00365)	0.0143*** (0.00251)	0.00378 (0.00259)
Observations	27,537	27,725	27,725	27,725	27,725	27,725	27,725	27,725	27,725	27,725
Rsquared	0.122	0.057	0.065	0.072	0.059	0.030	0.054	0.021	0.063	0.018
Less than college										
U rate	-0.0538*** (0.00987)	-0.0285*** (0.00951)	-0.0273*** (0.00959)	-0.00127 (0.00506)	-0.0410*** (0.0128)	0.0124 (0.00942)	-0.0388*** (0.0108)	-0.000186 (0.00747)	0.00765* (0.00451)	0.00264 (0.00493)
year trend	-0.0194*** (0.00451)	0.0156*** (0.00434)	0.0136*** (0.00438)	0.00201 (0.00231)	0.0108* (0.00583)	0.00483 (0.00430)	0.00160 (0.00492)	0.0105*** (0.00341)	0.00992*** (0.00206)	0.00406* (0.00225)
Observations	28,225	28,374	28,374	28,374	28,374	28,374	28,374	28,374	28,374	28,374
Rsquared	0.154	0.110	0.097	0.058	0.095	0.032	0.083	0.020	0.032	0.023
College educated										
U rate	-0.0280*** (0.00933)	0.00463 (0.0104)	-0.00565 (0.0103)	0.0103*** (0.00371)	-0.00704 (0.0130)	0.0117 (0.00753)	-0.0257** (0.0121)	-0.00177 (0.00772)	0.00752 (0.00642)	0.0228*** (0.00562)
year trend	-0.0127*** (0.00431)	0.00668 (0.00478)	0.00914* (0.00475)	-0.00246 (0.00171)	0.00916 (0.00598)	-0.00249 (0.00347)	-0.0211*** (0.00557)	0.0263*** (0.00356)	0.0226*** (0.00296)	0.00521** (0.00259)
Observations	27,391	27,526	27,526	27,526	27,526	27,526	27,526	27,526	27,526	27,526
Rsquared	0.069	0.038	0.033	0.073	0.029	0.029	0.048	0.022	0.048	0.019

Table 8. Results of estimation of the impact of the Great Recession on hours worked, conditional on working a positive number of hours. Heterogeneity of outcomes. Continued.

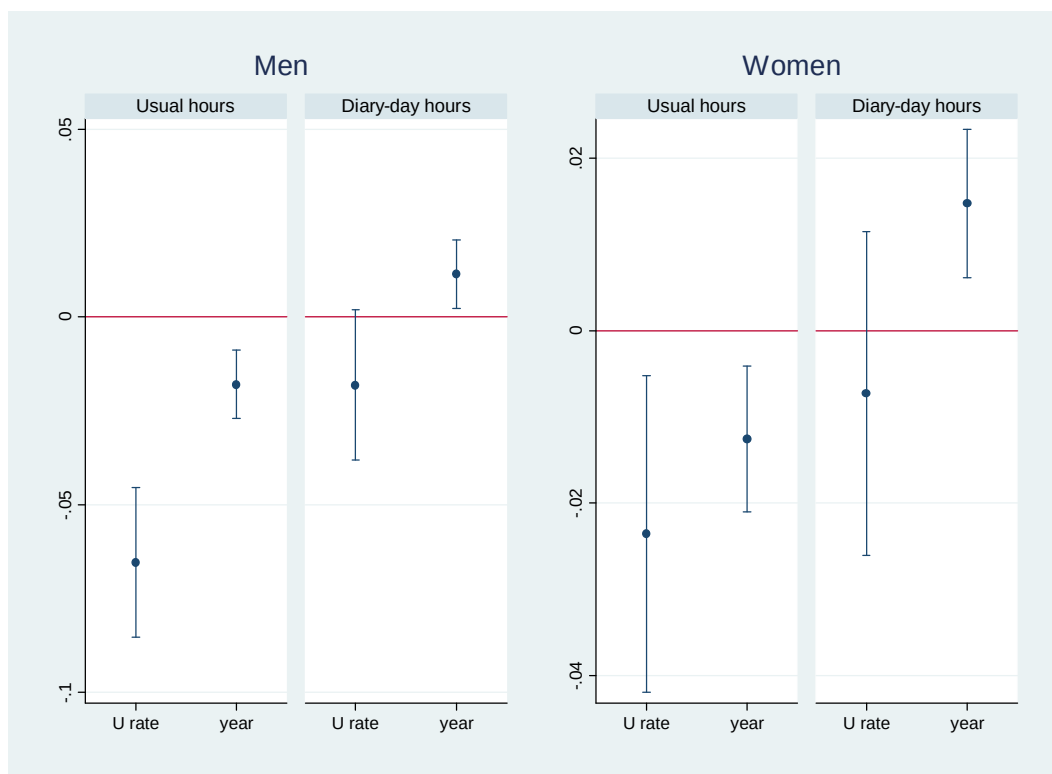
Outcomes	Usual hrs	Diary-day hrs	Daytime hrs	Nighttime hrs	Weekday hrs	Weekend hrs	Office hrs	No commute hrs	Home hrs	Other places hrs
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
First generation emigrants										
U rate	-0.0442*** (0.0153)	-0.00294 (0.0157)	-0.0227 (0.0159)	0.0197** (0.00799)	-0.0204 (0.0217)	0.0174 (0.0158)	-0.0103 (0.0178)	0.0156 (0.0116)	-0.00421 (0.00812)	0.0116 (0.00826)
year trend	-0.0199*** (0.00759)	-0.00743 (0.00776)	-0.00429 (0.00786)	-0.00314 (0.00395)	-0.00581 (0.0108)	-0.00162 (0.00782)	-0.0290*** (0.00879)	0.0165*** (0.00573)	0.0182*** (0.00402)	0.00328 (0.00409)
Observations	8,824	8,862	8,862	8,862	8,862	8,862	8,862	8,862	8,862	8,862
Rsquared	0.108	0.072	0.066	0.074	0.062	0.046	0.068	0.036	0.073	0.037
Natives										
U rate	-0.0427*** (0.00762)	-0.0154* (0.00784)	-0.0167** (0.00782)	0.00130 (0.00348)	-0.0269*** (0.0100)	0.0116* (0.00661)	-0.0369*** (0.00904)	-0.00599 (0.00603)	0.00988** (0.00435)	0.0116*** (0.00415)
year trend	-0.0141*** (0.00344)	0.0172*** (0.00354)	0.0171*** (0.00353)	8.62e-05 (0.00157)	0.0155*** (0.00453)	0.00176 (0.00298)	-0.00214 (0.00408)	0.0174*** (0.00272)	0.0146*** (0.00196)	0.00477** (0.00187)
Observations	46,792	47,038	47,038	47,038	47,038	47,038	47,038	47,038	47,038	47,038
Rsquared	0.140	0.073	0.070	0.068	0.069	0.031	0.059	0.018	0.052	0.018

Note: All the models include individual socio-demographics and state, industry and occupation fixed effects, as in model c of Table 3, which is our preferred specification.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10 .

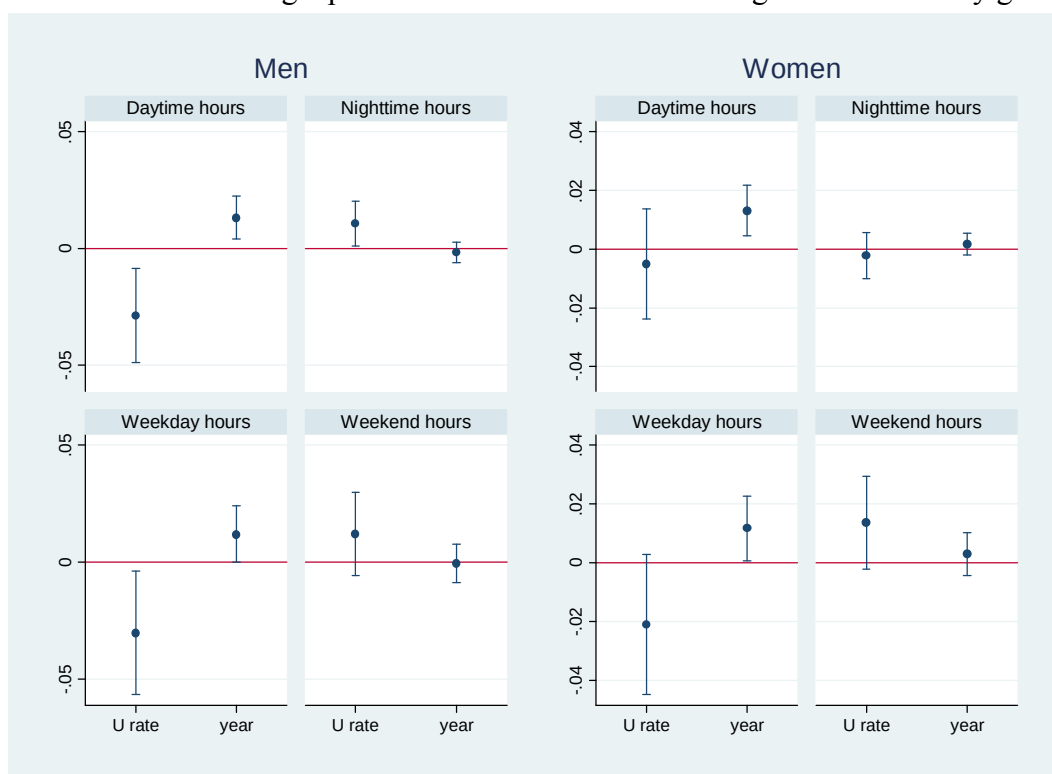
hrs stands for (daily) hours worked.

Figure 8. Results of estimation of the econometric model for usual hours and diary hours, conditional on working a positive number of hours. Heterogeneous results by gender.



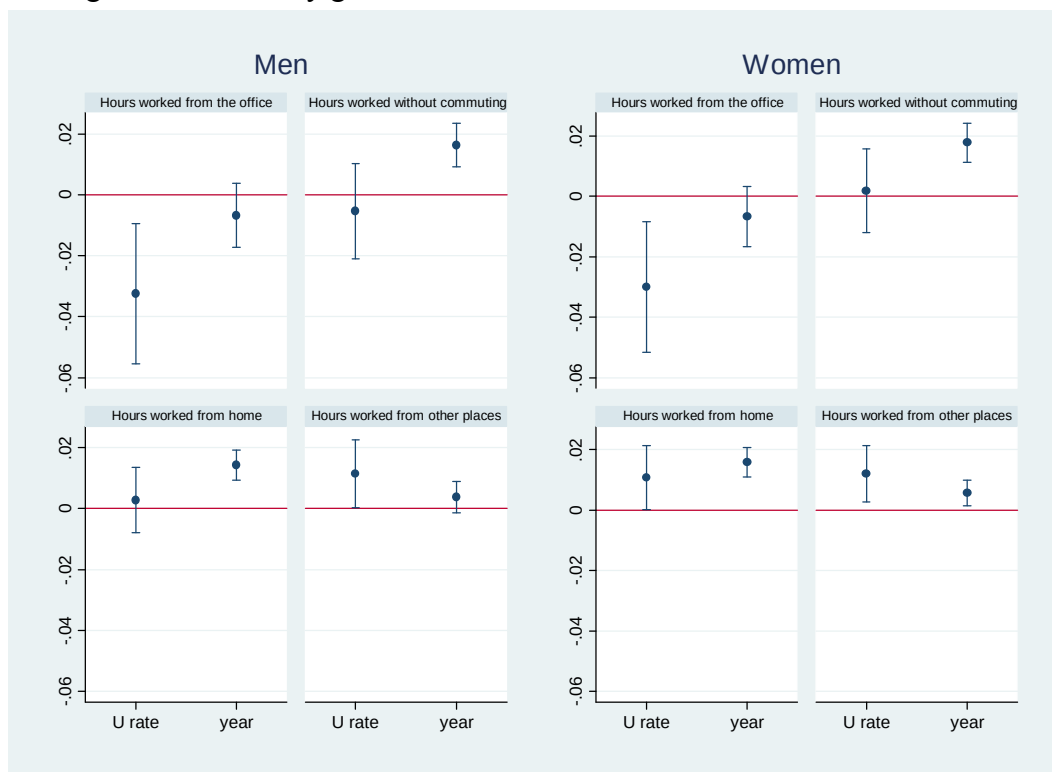
Note: selected estimates from the results of estimation in the first panel of Table 8. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

Figure 9. Results of estimation of the model for week, weekend, daytime or nighttime hours, conditional on working a positive number of hours. Heterogeneous results by gender.



Note: selected estimates from the results of estimation in the first panel of Table 8. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

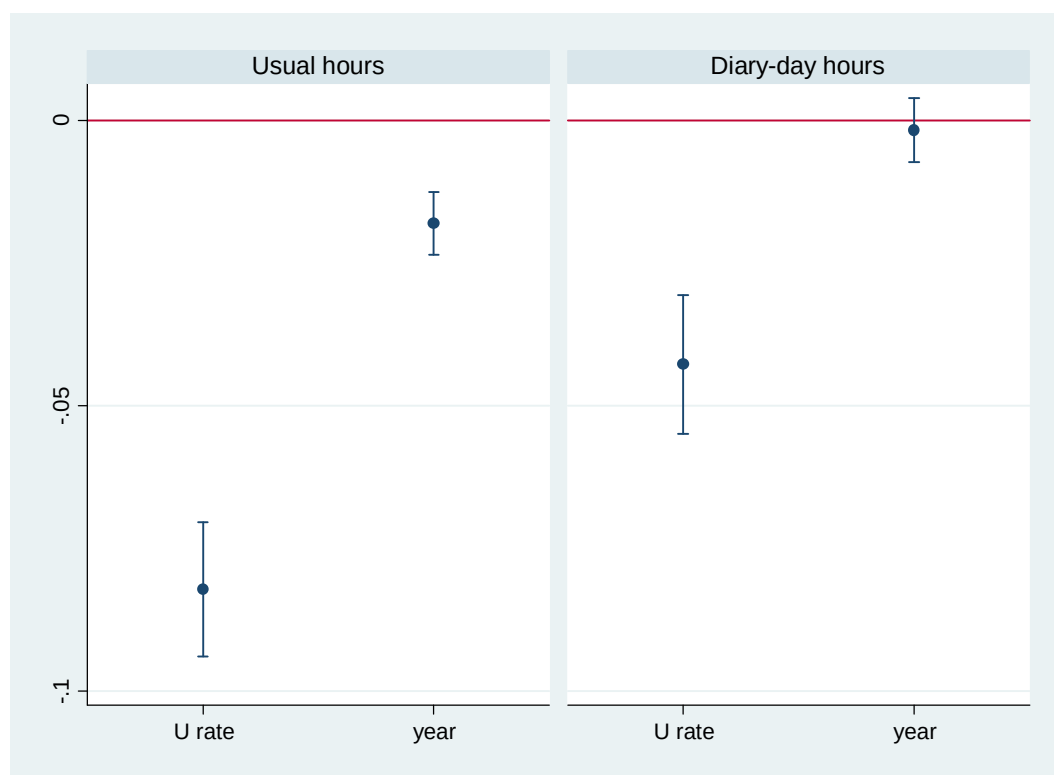
Figure 10. Results of estimation of the model for hours worked from the office, from home or elsewhere, or without commute, conditional on working a positive number of hours. Heterogeneous results by gender.



Note: selected estimates from the results of estimation in the first panel of Table 8. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

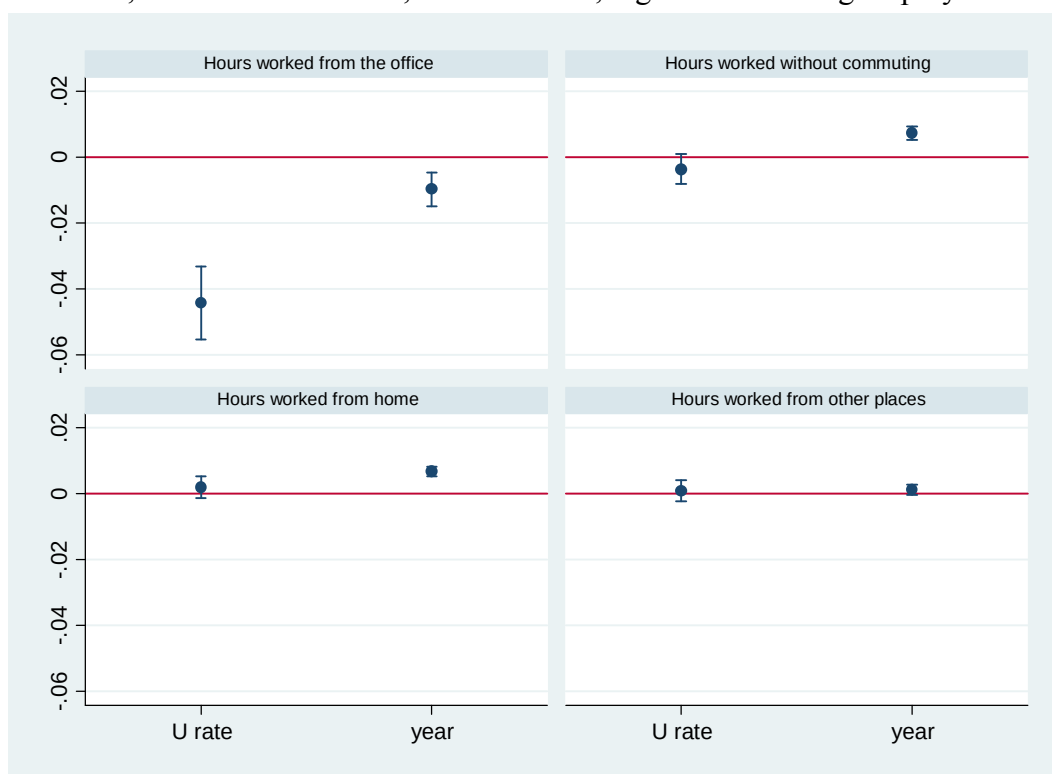
Appendix

Figure A. Results of estimation of the econometric model for usual hours and diary hours, unconditional, regardless of being employed or not.



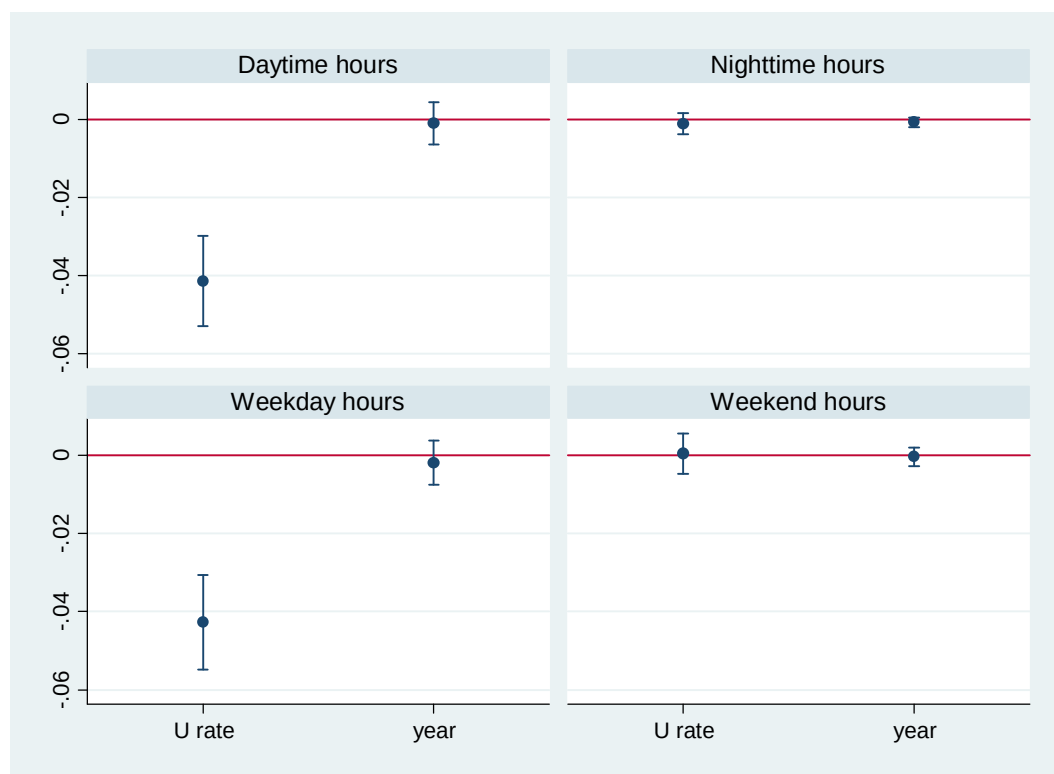
Note: selected estimates from the results of estimation of model f in Table 4. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

Figure B. Results of estimation of the model for hours worked from the office, from home or elsewhere, or without commute, unconditional, regardless of being employed or not.



Note: selected estimates from the results of estimation of model f in Table 4. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.

Figure C. Results of estimation of the model for week, weekend, daytime or nighttime hours, unconditional, regardless of being employed or not



Note: selected estimates from the results of estimation of model f in Table 4. The dot represent the point estimates (estimated coefficient) while the vertical line around the dot reproduces the 90% confidence intervals based on the standard errors from the model. The zero horizontal line serves to visually indicate whether estimates are significantly different from zero. The vertical axis gives the yearly average hours per day. The estimation sample includes ATUS respondents aged less than 70 years, not self-employed or in the military or in the agricultural sector. Other controls are state fixed effects, individual socio-demographics, and industry and occupation fixed effects.