

The Affordable Care Act and Trends in Part-Time Employment: 2016 Update

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Abstract

The Affordable Care Act (ACA)'s provisions, such as an employer mandate and means-tested Medicaid expansion and premium subsidies, could potentially have impacted labor market outcomes. This paper updated the analysis of Moriya, Selden, and Simon (2016) by adding data through mid-2016 and investigated the trend of part-time employment. I found that the ACA continued to have limited impact on part-time employment, even in 2016, after the employer mandate was fully implemented.

INTRODUCTION

The full implementation of the Affordable Care Act (ACA) increased insurance coverage substantially in the United States. The rate of health insurance coverage among non-elderly adults increased by 8.5 percentage points between 2013 and the first quarter of 2016 (Cohen, Martinez, and Zammitti, 2016). Although the ACA had been effective in achieving its primary goal of reducing the number of the uninsured, economic theory predicted that the ACA's employer shared responsibility provision (mandate) and its means-tested Medicaid expansions and Marketplace subsidies could have created employment disincentives. Specifically, the ACA's employer mandate, which required large employers to pay a penalty if they failed to provide affordable coverage to their full-time employees, could have caused employers to reduce some of their employees' work hours below a full-time threshold in order to avoid the penalty. On the other hand, some employees who had worked more hours than they preferred prior to 2014 in order to maintain eligibility for ESI (a form of "job lock") may have reduced their work hours once Medicaid and Marketplace plans became available.

The literature on the effects of an employer mandate for providing health insurance prior to the ACA was limited to the experiences of Hawaii and Massachusetts, which were the only states with mandates. The mandate in Hawaii requires all private employers to provide health insurance to employees who work 20 hours or more per week. Earlier studies such as Dick (1994) and Thurston (1997) used cross-sectional data and obtained mixed results regarding the effects of the mandate. A more recent study by Buchmueller et al. (2011) used a dataset that covers almost 30 years and found that the mandate had no effect on wages or employment probabilities but did increase the percentage of workers who worked fewer than 20 hours per week, the threshold for the penalty set by the mandate. Heim and Lurie (2015) examined the impacts of Massachusetts health care reform as a whole, which included an employer mandate, on job mobility and found the effects to be limited.

Medicaid expansion to low-income childless adults, those targeted by the ACA Medicaid expansion, was limited in the past, and pre-ACA studies that estimated the effects of Medicaid expansion

to this subpopulation reported mixed results. Garthwaite et al. (2014) analyzed the effects of abrupt disenrollment of low- to moderate-income adult Medicaid recipients in Tennessee and found that employment increased substantially after the disenrollment. Dague et al. (forthcoming) investigated the effects of Wisconsin's Medicaid program for low-income childless adults and found a statistically significant decrease in employment, yet the magnitude of the estimated effect was smaller than the effect found in Garthwaite et al. (2014). Finally, Baicker et al. (2014) examined the Medicaid expansion to childless adults below the federal poverty level in Oregon using an experimental design, and found that the program was associated with a very small decrease in employment, which was not statistically significant.

The insurance coverage expansion through the ACA in 2014 has been the largest since the creation of Medicare, and its effects on labor market outcomes have been of interest to economists and policy makers. Its early effects were studied concurrently by researchers, and most researchers found limited impact of the ACA on the labor market. Both Garrett and Kaestner (2015) and Moriya, Selden, and Simon (2016) examined trends in part-time employment using the Current Population Survey (CPS) data through 2014 and mid-2015, respectively, and found limited evidence that the full implementation of the ACA increased part-time employment in the United States. Dillender, Henrich, and Houseman (2016) also used the CPS data to investigate how the ACA employer mandate affected part-time employment shortly after the ACA was enacted in 2010. By employing a difference-in-difference-in-difference estimation strategy that exploits the differences between industries, states (Hawaii vs. the rest of the states), and times, they found that involuntary part-time employment increased in retail, accommodations, and food services industries. Garrett and Kaestner (2015), Kaestner et al. (2015), Gooptu et al. (2016), and Leung and Mas (2016) estimated the effects of the ACA Medicaid expansion by applying a difference-in-difference estimation strategy that compares the changes in outcomes pre- and post-ACA between the Medicaid expansion states and non-expansion states. The authors found that the ACA Medicaid expansion had no

statistically significant effects on labor market outcomes using both the CPS and ACS (American Community Survey) data or the CPS data only.

These ACA studies used the data through 2015; however, both employers and employees may still have been adjusting to the ACA provisions during their study periods. Moreover, the employer mandate was not fully implemented until January 2016 when the mandate became binding for firms with 50-99 employees. This paper updated the analysis in Moriya, Selden, and Simon (2016) by adding one more year of the CPS data through mid-2016, and it offered a first look at the ACA's effects on part-time employment through its third year. The findings suggested that the implementation of the ACA continued to have little effect on labor market outcomes.

ACA PROVISIONS AND HYPOTHESES

The ACA required large employers (with 50 or more full-time employees or full-time equivalents) to pay an annual penalty of \$2,000 for every full-time employee beyond the first 30 employees if the employers failed to provide health insurance coverage to at least 95 percent of their full-time employees. The ACA defined "full-time" employees as employees who work an average of at least 30 hours per week. In July 2013, the policy start date was postponed from January 2014 to January 2015. Further, in February 2014, the mandate for 2015 was relaxed: larger firms (with 100 or more employees) were required to provide coverage to only 70 percent of their full-time employees until 2016, and the policy start date for firms with 50-99 employees was postponed to January 2016.

Employers may have continued not to offer insurance coverage at all or not to offer coverage to certain employees if they could not shift the costs of providing insurance to the employees. Employers may have been unable to shift insurance costs for several reasons, such as if the productivity of the employees was too low and their wages could not be decreased further due to minimum wage laws or if the employees did not value insurance coverage more than its costs. If that was the case, employers may have chosen to reduce work hours of these employees to just below the 30-hour threshold to avoid the

penalty. I hypothesized that the mandate caused the employers to reduce work hours of some of their employees to just below 30 hours. Further, since small firms (those with fewer than 50 employees) were exempted from the mandate, there should have been no effects among these firms.

The ACA expanded Medicaid eligibility to non-elderly adults below 138% of the Federal Poverty Level (FPL) who resided in states that adopted the expansion. The Act also provided premium subsidies on a sliding scale to those with family incomes between 100% and 400% of the FPL if they or their spouses were not offered “affordable” comprehensive coverage from their employers. These means-tested coverage and subsidies could potentially have discouraged workers from earning more than the eligibility thresholds so that they could gain eligibility for Medicaid or the subsidies. Also, some employees may have worked full time just to gain eligibility for ESI and may have preferred working shorter hours. These employees may have decreased their hours once insurance outside their workplace became available, which could have been welfare-enhancing, according to the “job lock” theory. I hypothesized that Medicaid expansion and the introduction of the premium subsidies for Marketplace coverage reduced work hours and increased part-time employment. The probability of working 25-29 hours in particular would increase if employees who previously worked full time just to gain eligibility for ESI reduced work hours to just below the 30-hour threshold so they no longer have an ESI offer from their employers and gain eligibility for the Marketplace subsidies. Whether these effects differed by firm size was ambiguous a priori. Large employers were more likely to offer health insurance, and thus their employees were more likely to have been “locked” into their jobs prior to the ACA. On the other hand, the costs of coverage tended to be higher in smaller firms, which could have made employees in these firms more likely to opt for Medicaid coverage or Marketplace subsidies.

DATA AND METHODS

I used the CPS basic monthly data collected by the United States Bureau of Labor Statistics as the main data source. CPS interviewed around 60,000 households each month to collect basic demographic

and labor force status information, and the data became publicly available approximately one month after the interviews. Due to its large sample size and almost immediate release of data, the CPS monthly dataset has been a valuable data source for timely analysis of labor market behavior. The sample of the analysis was employed individuals aged 19-64 years except self-employed individuals and individuals with imputed work hours, and the data period ranged from January-June of 2005-2016. I excluded the data from July to December to make the estimates for the year 2016 comparable to those from previous years. To investigate whether the effects differ by firm size and previous insurance status, I merged the firm size and insurance information from the previous year's CPS March Annual Social and Economic (ASEC) Supplement, following the procedure used in the literature (Madrian and Lefgren, 1999). Such matching was possible due to CPS's rotation group data structure.¹ Since the categories of firm size in the CPS ASEC were changed in March 2011, I used the data from January-June of 2012-2016 in the analyses by firm size. Descriptive statistics of the sample of the main analysis and the sample using the firm size information (ASEC-matched sample hereafter) were shown in Appendix Table 1.

I tested the hypotheses by examining the trend of the probability of working on a main job in each hour range, especially, 25-29 hours, among non-elderly employees. If the effect of the mandate on employer disincentive was large enough, I would be able to detect a decrease in the probability of working 25-29 hours, just below the thirty-hour threshold, once the mandate was implemented. Since the employer mandate was applicable only to large firms and the timing of the implementation differed by firm size, I also examined the trends of the probability of working 25-29 hours by firm size. I further

¹ The sample in the CPS data consisted of eight representative subsamples called rotation groups, and housing units in each rotation group were interviewed for four consecutive months. Those housing units were then dropped out of the sample for the next eight months, and they were interviewed again for another four months. Thus, in theory, half of the housing units interviewed by the CPS basic monthly survey in March of the current year could be matched to the housing units interviewed by ASEC in March of the previous year. The rate of potential matching was 37.5% for housing units surveyed by the CPS basic monthly survey in February or April, 25% for those interviewed in January or May, and 12.5% for those interviewed in December from the previous year and in June. Among the respondents in the monthly survey who potentially could have been matched to the respondents in the ASEC data, the matching rate was 67.8% in the sample, which was comparable to the rate in literature (Madrian and Lefgren, 1999).

investigated the trends by the reason for part-time employment: involuntary or voluntary.² An increase in the probability of working 25-29 hours for involuntary reasons after the mandate implementation among employees in affected firms would suggest that the increase was due to the mandate. Likewise, an increase in the probability of working 25-29 hours for voluntary reasons after 2014 would indicate that the increase occurred because of either the Medicaid expansion or the Marketplace subsidies. Finally, I explored the effects among subgroups likely affected by the policies, such as those with lower educational attainment and those near retirement age.

Since the study period included the time of the Great Recession, controlling for the effects of local economic conditions was important when analyzing labor market outcomes. Following Moriya, Selden, and Simon (2016), I ran regressions of the outcomes on monthly state unemployment rate, state fixed effects, and year fixed effects, and I predicted the outcomes by setting state unemployment rate equal to its average in 2016. Specifically, I estimated an equation of the following form using a linear probability model

$$y_{i,s,t} = \alpha + \beta \text{UnemploymentRate}_{s,t} + \eta_s + \tau_t + \varepsilon_{i,s,t},$$

where $y_{i,s,t}$ represented the outcome variables (for individual i who resides in state s at time t), $\text{UnemploymentRate}_{s,t}$ was state monthly unemployment rate, η_s was the state fixed effect, τ_t was the year fixed effect, and $\varepsilon_{i,s,t}$ was an error term. I cluster-corrected standard errors at the state level and used survey weights in all estimation. Then I predicted the outcome variables by setting state unemployment rate equal to the average rate in January-June 2016 and setting state fixed effects equal to the average weighted distribution of observations across states during the study period among the sample used for

² Employees who wanted to work full time (i.e., 35 hours or more per week) but worked part time due to “slack hour/business conditions” or “could only find part-time work” were categorized as working part time for involuntary reasons. Employees who either did not want to work full time or wanted to work full time but working part time due to the reasons such as “school/training” and “family/personal obligations” were categorized as working part time for voluntary reasons. The variable I used to define these categories was available only to those whose total weekly work hours (hours worked on both main and other jobs) were 35 hours or more. I categorized the individuals whose total weekly work hours exceeded 35 hours (but whose weekly hours on the main jobs were less than 35 hours) as working part time for involuntary reasons since those who work part time voluntarily on the main jobs were unlikely to have secondary jobs. The results were robust to excluding these individuals from the analysis.

each analysis. The resulting time trends showed how the trends would look if the state unemployment rate had been at the 2016 level in all years.

RESULTS

Main Analysis

The trends of the adjusted probability of working each hour range among the sample of non-elderly adult wage earners were shown in Figure 1. The adjusted probability of working 25-29 hours increased in 2014 by 0.16 percentage points (from 2.27 percent in 2013), and there were no statistically significant changes annually or bi-annually between 2014 and 2016. The increase between 2013 and 2014 could be consistent with the hypothesis that the ACA provisions such as the Medicaid expansion and the subsidies through the Marketplaces increased part-time employment, although the change could merely reflected increasing trends over the study period. On the other hand, no significant increases between 2014 and 2016 were inconsistent with the hypothesis that the employer mandate increased the probability of working just below the 30-hour threshold.

I showed the time trends of the adjusted probability of working 25-29 hours by firm size in the first panel of Figure 2. The adjusted probability, in fact, decreased by 0.20 percentage points in firms with 100 or more employees in 2015, when the mandate became effective for them, although the decrease was not statistically significant. The probability increased by 0.29 percentage points in 2016, but the 2016 level was not significantly different from the 2014 level. In firms with 50-99 employees, there were no significant changes in the probability of working 25-29 hours in 2015, when the mandate took effect for them. These findings did not support the hypothesis that the mandate increased part-time employment. The trend of the adjusted probability in firms with 49 or fewer employees, which were exempted from the mandate, was very similar to that in firms with 100 employees or more between 2014 and 2015. This also fails to support the hypothesis that the employer mandate increased part-time work.

The next two panels in Figure 2 showed the adjusted probability of working 25-29 hours by the reason for part-time employment. The adjusted probability of working 25-29 hours involuntarily were flat over the study period, and the changes in 2014-2016 were not statistically significant for the firms of all sizes. This finding reinforced the results obtained so far. The adjusted probability of working 25-29 hours voluntarily did not change much during the study period, either, although there was a 0.19 percentage point increase in 2016 in large firms. If anything, the increase in the probability of working 25-29 hours in large firms in 2016 shown in the first panel of the Figure 2 reflected the increase in part-time employment among those who voluntarily reduced hours, perhaps to gain eligibility for Medicaid or Marketplace subsidies.

Subgroup Analysis: Lower Educational Attainment

In this and the following sections, I focused on the subgroups that were deemed more likely to have been affected by the ACA provisions, following the analysis by Moriya, Selden and Simon (2016). First, I limited the population to those with lower educational attainment, defined as the individuals with a high school diploma or less. Employers may have had incentives to avoid providing health insurance to this subpopulation if the employers were unable to shift the costs of providing health insurance to them due to minimum wage laws or their very low productivity. Also, employees may have had incentives to voluntarily reduce work hours because their wages could be close enough to Medicaid eligibility thresholds or within Marketplace subsidy eligibility range. Figure 3 showed that there were no changes in the adjusted probability of working 25-29 hours in 2015 or 2016 among the subgroup of those with lower educational attainment. The trends by firm size in Figure 4 revealed that the adjusted probability of working 25-29 hours increased by 0.72 percentage points in 2016 in small firms, which were exempted from the mandate. There were no statistically significant changes in the probability of working 25-29 hours among those with lower educational attainment annually and bi-annually in 2014-2016 in larger firms.

Subgroup Analysis: Near Retirement Age

Since older individuals were costly to cover on average, employers may have had incentives to reduce their hours (to avoid penalties or the high cost of coverage). Also, older people may be more likely to have been “locked” into full-time jobs before ACA implementation due to their higher demand for health insurance. Figure 5 showed the trends of adjusted probability of working each hour range among those aged 60-64 years. There were no significant changes in the adjusted probability of working 25-29 hours annually and biannually between 2014 and 2016. The first two panels of Figure 6 showed that there were no significant changes in the adjusted probability of working 25-29 hours for any reasons or for involuntary reasons between 2014 and 2016 regardless of firm size. The third panel showed that the adjusted probability of working 25-29 hours voluntarily increased in 2014 in firms with fewer than 50 employees. These findings indicated that older employees in small firms may have reduced hours to gain eligibility for Medicaid or for Marketplace subsidies after the ACA implementation. Since older individuals may have reduced hours further to the 0-24 hour range, I also looked at the trends of adjusted probability of working 0-24 hours. I found no evidence that older employees reduced work hours to the 0-24 hour range (results not shown).

Subgroup Analysis Based on Prior Insurance Status

In this section, I used insurance status information obtained from the previous year’s ASEC and work hour information obtained from the previous year’s monthly CPS to limit the population. A caveat to this analysis was that insurance status in the ASEC was as of prior year; thus the insurance information used in the analysis was as of two years prior to when the current work hour information was obtained. One subgroup potentially affected by the mandate was employees in large firms who worked 30 hours or more in the previous year and reported no ESI in own name in the prior-year ASEC. Figure 7 showed there was no evidence that the probability of working fewer than 30 hours increased in 2014-2016. The results were unchanged even when the sample was further restricted to those who worked 30-34 hours in

the previous year (see Figure 8). A subgroup that was potentially affected by the expansion or subsidies could have been employees in large firms who worked 35-39 hours in the previous year and reported own ESI in the prior-year ASEC. Figure 9 showed that the probability of working 25-29 hours increased by 0.74 percentage point among this subpopulation in 2016.

ROBUSTNESS CHECK

Since CPS was a household survey, the work hour information was self-reported and could have been subject to rounding errors in respondent reporting (e.g., by reporting “30 hours” when they worked just under 30 hours). To address this concern, I examined the probability of working 26-30 hours, replicating the main analysis by firm size. Figure 10 showed that the probability of working 26-30 hours increased by 1.18 percentage points between 2013 and 2015 in firms with 50-99 employees and that this increase was due to a significant increase in the probability of working 26-30 hours voluntarily. In firms with 100 or more employees, the probability of working 26-30 hours decreased by 0.43 percentage points between 2014 and 2015. However, when I examined the trends by reasons for part-time employment, I found that the probability of working 26-30 hours for either voluntary or involuntary reasons was not significant in these firms during the same time period. In firms with fewer than 50 employees, which were exempted from the mandate, involuntary part-time employment increased by 0.62 percentage points between 2014 and 2015.

The results were also robust to alternative ways of constructing the study sample. First, I limited the sample to those in the private sector, because governments could be less likely to change their employees’ work hours to avoid penalties. Second, I excluded union members from the sample because reducing their hours could be difficult for employers. Third, I limited the sample to individuals in retail, accommodations and food services industries, because low wages and part-time employment are relatively common in these industries. Finally, I limited the sample to those who just changed their jobs

because employers may adjust to the mandate by reducing the hours of newly-hired employees. I conducted all the analysis mentioned in the results section using these samples and found that the results were unchanged.

CONCLUSIONS

I examined the trends of part-time employment using the data through mid-2016. Consistent with Moriya, Selden, and Simon (2016), I found limited evidence that the ACA implementation increased part-time employment, even in 2016 when the employer mandate was fully implemented. Exceptions were the increases in voluntary part-time employment among those near retirement age in 2014 and among those in large firms, especially those with ESI and who worked 35-39 hours, in 2016. These changes are consistent with the hypothesis that individuals in these subgroups may have reduced their work hours to qualify for Medicaid or the premium subsidy, but these changes were not large enough to be detected in the analysis using the whole population. The results of this paper do not support the hypothesis that employers cut the work hours of their employees to under 30 hours to avoid the penalty imposed by the mandate. Future research is needed to investigate the provisions' longer-term effects on labor market behavior. Research on the effects among subpopulations with high health risks, including chronic conditions, could be fruitful.

ACKNOWLEDGEMENTS

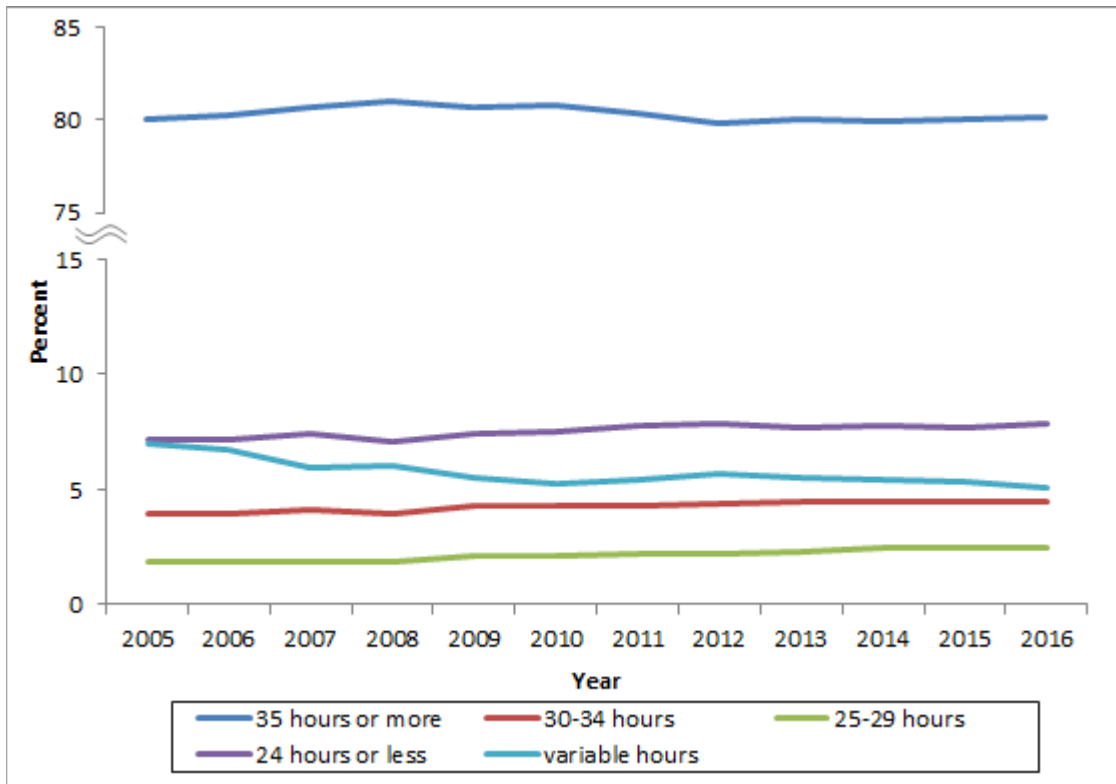
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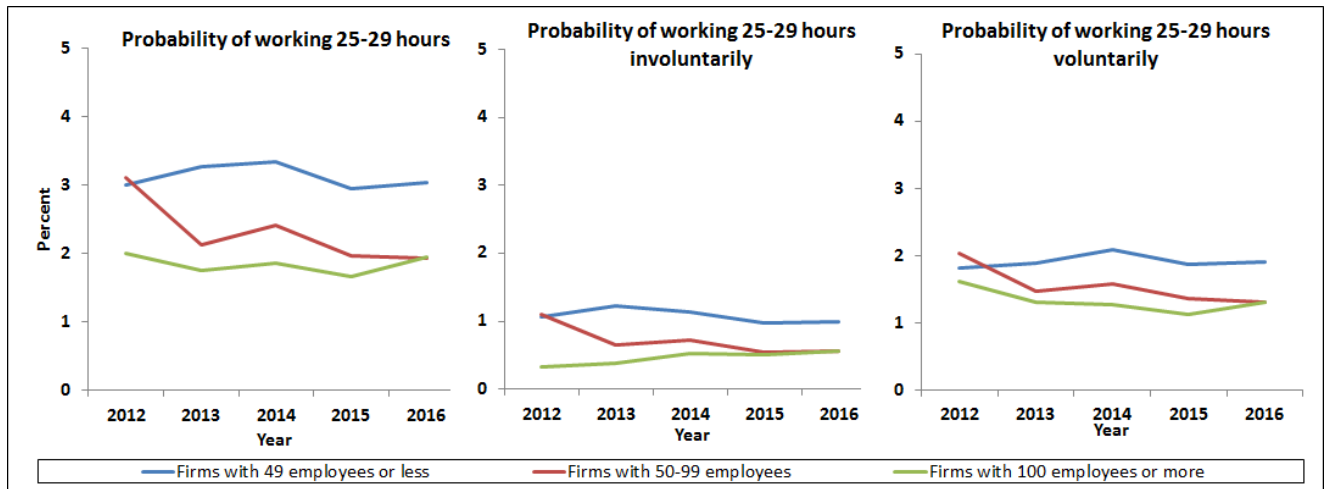
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Figure 1. Adjusted probability of working each hour range, 2005-2016



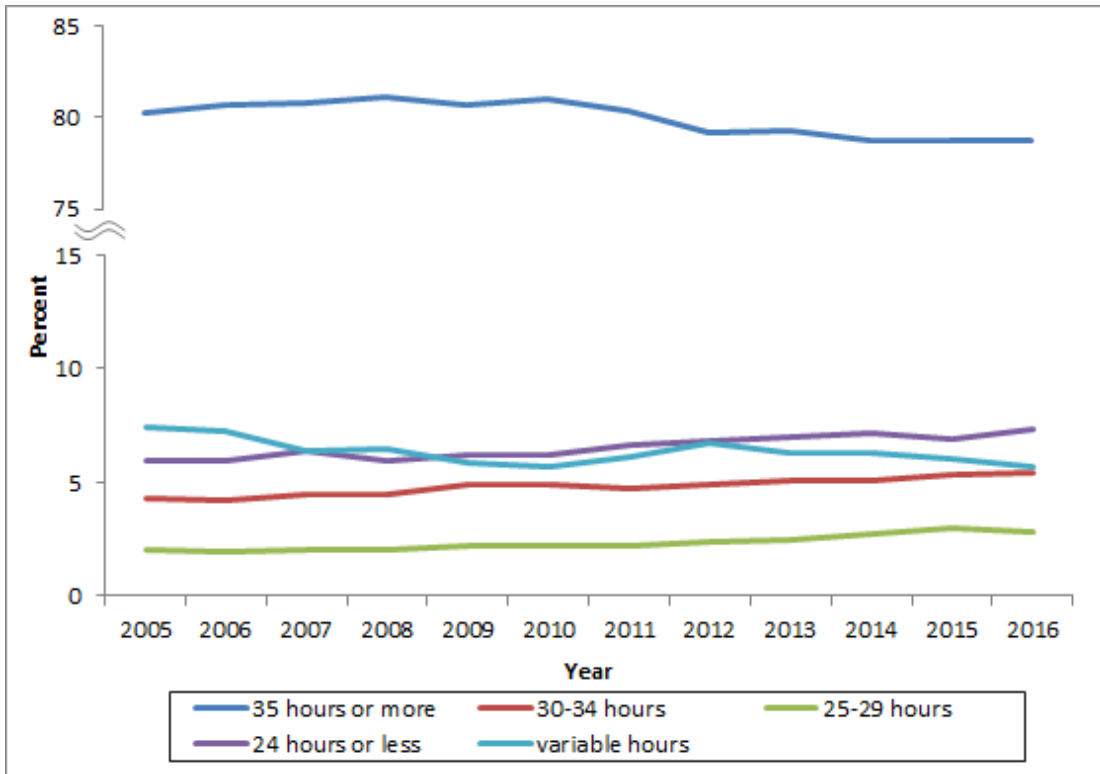
Notes: (1) Source: Author's analysis of the Current Population Survey (CPS) Basic Monthly Survey data, from January to June of 2005-2016. (2) The sample is employed individuals aged 19-64 years except self-employed individuals and individuals with imputed work hours. Work hours are defined as hours usually worked on a main job. See the text for the details.

Figure 2. Adjusted probability of working 25-29 hours by firm size, overall, and by reasons for part-time employment



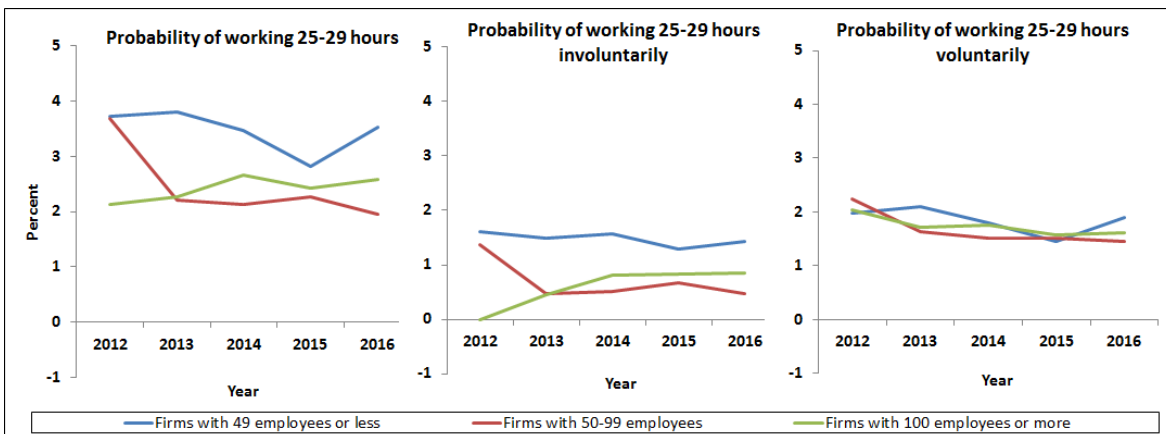
Notes: (1) Source: Author's analysis of data from the Basic Monthly Current Population Survey for January-June of each year in the period 2012-16 matched with firm size data from the Annual Social and Economic Supplement of the previous March's Current Population Survey. (2) The sample is all employed people ages 19-64, except self-employed people and those with imputed work hours. Work hours are defined as hours usually worked on a main job. See the text for the details.

Figure 3. Adjusted probability of working each hour range among those with lower educational attainment, 2005-2016



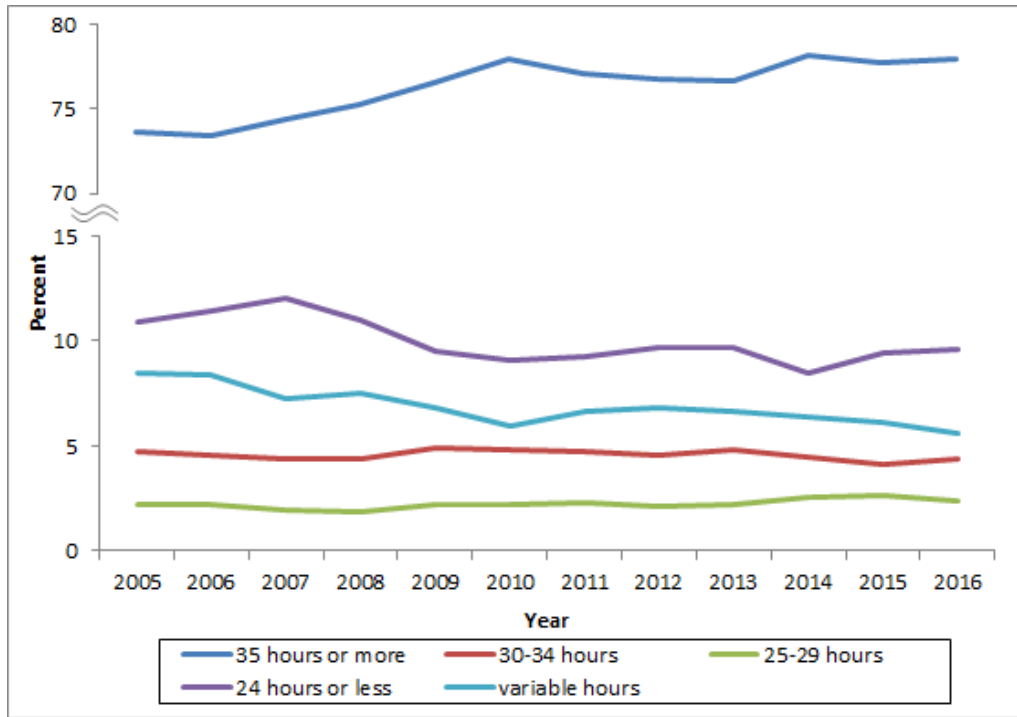
Notes: (1) The sample is employed people ages 19–64 with a high school diploma or less. Self-employed people and those with imputed work hours are excluded. (2) See Note (1) under Figure 1 for the source and the text for the details.

Figure 4. Adjusted probability of working 25-29 hours among those with lower educational attainment by firm size, overall, and by reasons for part-time employment, 2012-2016



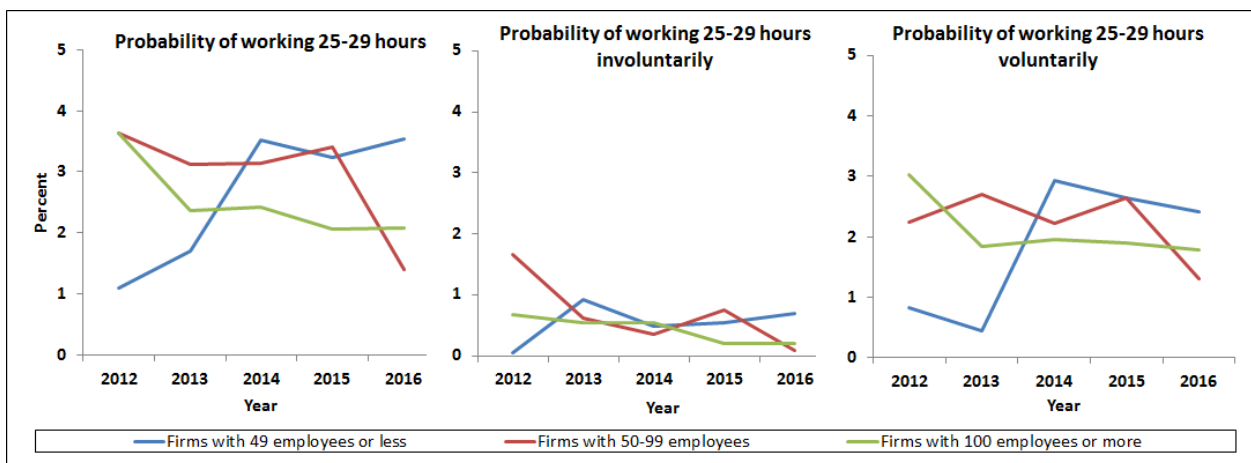
Notes: (1) The sample is employed people ages 19-64 with high school diploma or less education. Self-employed people and those with imputed work hours are excluded. (2) See Note (1) under Figure 2 for the source and the text for the details.

Figure 5. Adjusted probability of working each hour range among those near retirement age, 2005-2016



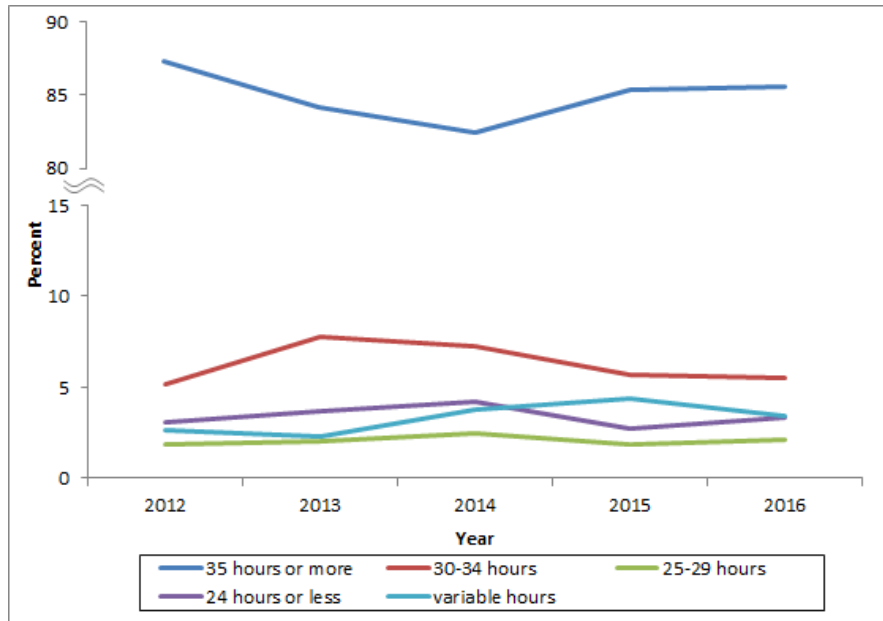
Notes: (1) The sample is employed individuals aged 60-64 years except self-employed individuals and individuals with imputed work hours. (2) See Note (1) under Figure 1 for the source and the text for the details.

Figure 6. Adjusted probability of working 25-29 hours among those near retirement age by firm size, overall, and by reasons for part-time employment, 2012-2016



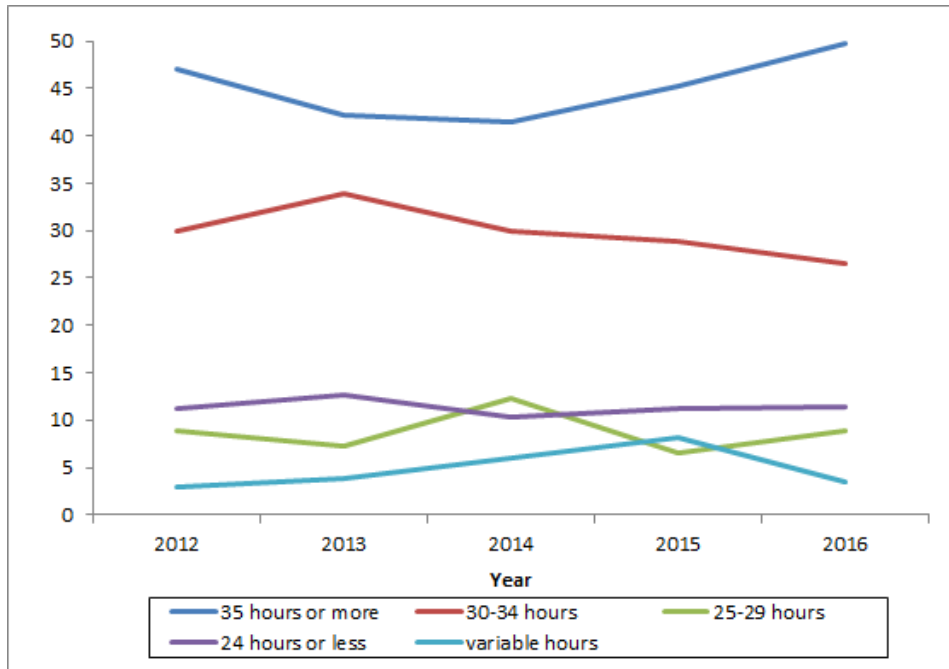
Notes: (1) The sample is employed individuals aged 60-64 years except self-employed individuals and individuals with imputed work hours. (2) See Note (1) under Figure 2 for the source and the text for the details.

Figure 7. Adjusted probability of working each hour range among those who worked 30 hours or more at firms with 100 or more employees and did not report ESI in the prior year ASEC, 2012-2016



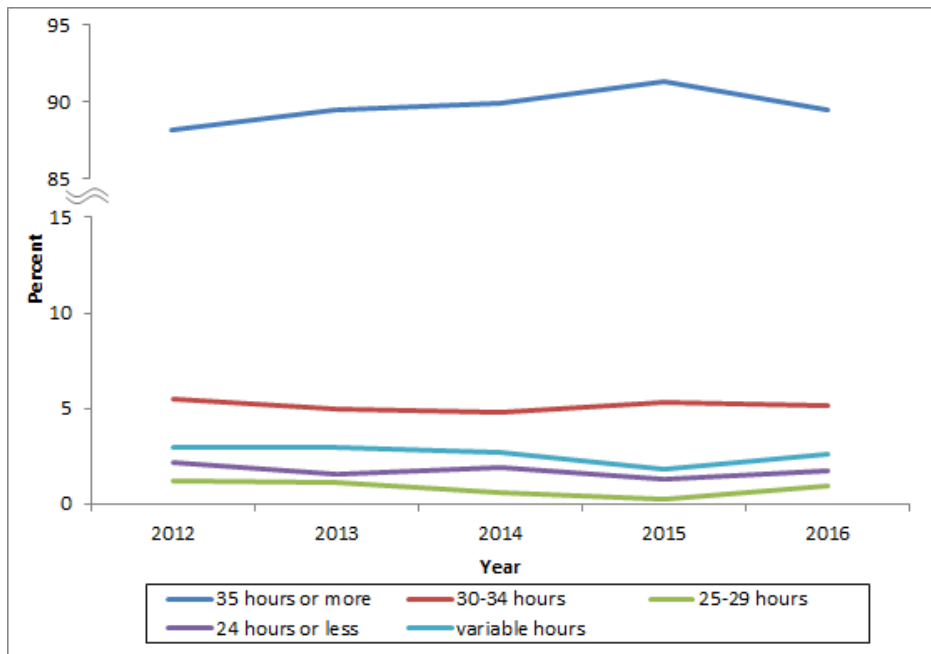
Notes: (1) The sample is employed people ages 19-64 who worked 30 hours or more at firms with 100 or more employees and did not report ESI in the prior year ASEC. Self-employed people and those with imputed work hours are excluded. (2) See Note (1) under Figure 1 for the source and the text for the details.

Figure 8. Adjusted probability of working each hour range among those who worked 30-34 hours at firms with 100 or more employees and did not report ESI in the prior year ASEC, 2012-2016



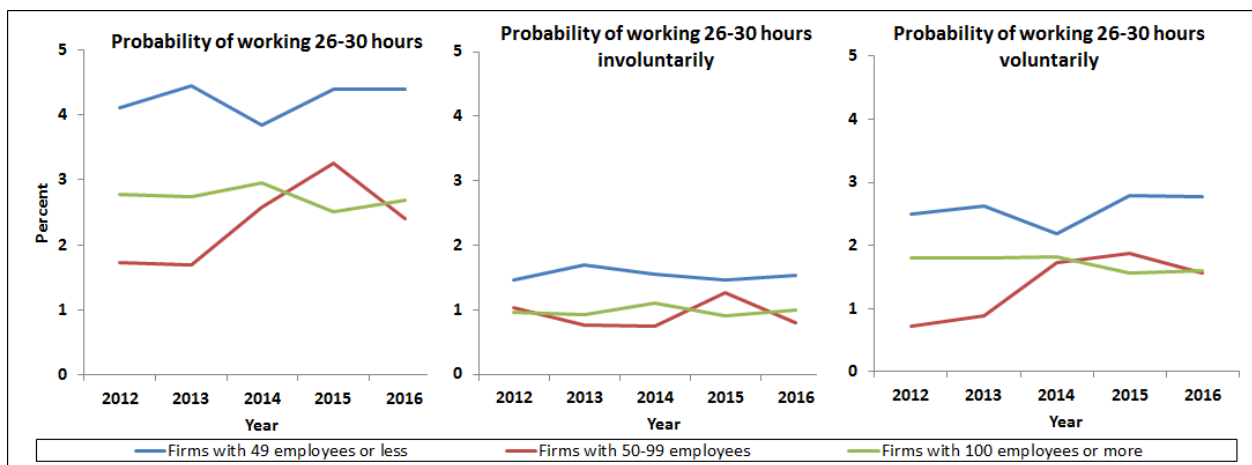
Notes: (1) The sample is employed people ages 19–64 who worked 30-34 hours at firms with 100 or more employees and did not report ESI in the prior year ASEC. Self-employed people and those with imputed work hours are excluded. (2) See Note (1) under Figure 1 for the source and the text for the details.

Figure 9. Adjusted probability of working each hour range among those who worked 35-39 hours at firms with 100 or more employees and who reported ESI in own name in the prior year ASEC, 2012-2016



Notes: (1) The sample is employed people ages 19–64 who worked 35-39 hours at firms with 100 or more employees and who reported ESI in own name in the prior year ASEC. Self-employed people and those with imputed work hours are excluded. (2) See Note (1) under Figure 1 for the source and the text for the details.

Figure 10. Adjusted probabilities of working 26-30 hours by firm size, overall, and by reason for part-time employment, 2012-2016



Notes: (1) The sample is employed individuals aged 19-64 years except self-employed individuals and individuals with imputed work hours. (2) See Note (1) under Figure 2 for the source and the text for the details.

Appendix

Appendix Table 1. Descriptive Statistics of the Sample of the Main Analysis and the Sample of the Analysis Using Firm Size Information

	Main Sample, 2005-2016	ASEC-matched sample, 2012- 2016
Demographic Variables		
Age	40.300	42.861
Male	0.516	0.520
Race/ethnicity		
White	0.663	0.668
African-American	0.112	0.102
Hispanic	0.154	0.154
Other	0.071	0.077
Married	0.566	0.614
Education Variables		
High school diploma or less	0.364	0.323
Some college	0.301	0.299
B.A. or more	0.335	0.378
Monthly state unemployment rate	6.730	6.650
Number of observations	3,703,328	317,915

Notes: (1) Source: first column: the Basic Monthly Current Population Survey; and second column: the Basic Monthly Current Population Survey matched with the data from the Annual Social and Economic Supplement of the previous March's Current Population Survey. (2) The sample is all employed people ages 19-64, except self-employed people and those with imputed work hours. See the text for the details.

Appendix Table 2. Estimates from Figure 1: Adjusted probability of working each hour range, 2005-2016 (in percent)

	35 hours or more		30-34 hours		25-29 hours		24 hours or less		variable hours	
2005	80.020	(0.194)	3.978	(0.062)	1.880	(0.028)	7.135	(0.100)	6.988	(0.176)
2006	80.263	(0.203)	3.966	(0.068)	1.865	(0.039)	7.184	(0.096)	6.723	(0.194)
2007	80.649	(0.179)	4.085	(0.050)	1.866	(0.037)	7.436	(0.069)	5.964	(0.138)
2008	80.996	(0.142)	3.962	(0.055)	1.893	(0.036)	7.121	(0.103)	6.028	(0.142)
2009	80.702	(0.341)	4.301	(0.118)	2.094	(0.071)	7.422	(0.128)	5.481	(0.380)
2010	80.806	(0.339)	4.317	(0.113)	2.125	(0.095)	7.484	(0.136)	5.267	(0.407)
2011	80.376	(0.378)	4.273	(0.099)	2.167	(0.094)	7.761	(0.141)	5.423	(0.335)
2012	79.881	(0.305)	4.357	(0.112)	2.194	(0.070)	7.849	(0.134)	5.718	(0.310)
2013	80.005	(0.320)	4.494	(0.073)	2.271	(0.049)	7.702	(0.142)	5.528	(0.264)
2014	79.900	(0.235)	4.478	(0.075)	2.435	(0.053)	7.773	(0.121)	5.415	(0.232)
2015	80.042	(0.225)	4.490	(0.070)	2.458	(0.046)	7.684	(0.110)	5.326	(0.154)
2016	80.167	(0.198)	4.452	(0.061)	2.432	(0.055)	7.867	(0.120)	5.082	(0.141)

Notes: N=3,703,328. Standard errors are in parentheses.

Appendix Table 3. Estimates from Figure 2. Adjusted probability of working 25-29 hours by firm size, overall, and by reasons for part-time employment (in percent)

	Firms with 49 or fewer employees		Firms with 50-99 employees		Firms with 100 employees or more	
Overall						
2012	2.997	(0.347)	3.111	(0.501)	2.001	(0.184)
2013	3.266	(0.297)	2.122	(0.427)	1.751	(0.155)
2014	3.334	(0.210)	2.403	(0.312)	1.846	(0.112)
2015	2.944	(0.166)	1.961	(0.246)	1.650	(0.084)
2016	3.036	(0.150)	1.925	(0.222)	1.940	(0.081)
Involuntary part-time employment						
2012	1.068	(0.217)	1.095	(0.314)	0.334	(0.109)
2013	1.225	(0.184)	0.641	(0.253)	0.385	(0.093)
2014	1.132	(0.127)	0.717	(0.186)	0.519	(0.066)
2015	0.977	(0.100)	0.542	(0.139)	0.508	(0.050)
2016	0.998	(0.088)	0.566	(0.125)	0.558	(0.045)
Voluntary part-time employment						
2012	1.811	(0.268)	2.031	(0.382)	1.613	(0.146)
2013	1.883	(0.230)	1.468	(0.335)	1.309	(0.123)
2014	2.087	(0.166)	1.568	(0.244)	1.260	(0.089)
2015	1.875	(0.132)	1.357	(0.197)	1.121	(0.068)
2016	1.903	(0.118)	1.295	(0.180)	1.311	(0.066)
N	87,971		24,373		205,571	

Note: Standard errors are in parentheses.

Appendix Table 4. Estimates from Figure 3. Adjusted probability of working each hour range among those with lower educational attainment, 2005-2016 (in percent)

	35 hours or more		30-34 hours		25-29 hours		24 hours or less		variable hours	
2005	80.321	(0.290)	4.329	(0.099)	2.004	(0.054)	5.944	(0.150)	7.403	(0.225)
2006	80.706	(0.257)	4.179	(0.085)	1.920	(0.065)	5.956	(0.149)	7.239	(0.239)
2007	80.771	(0.187)	4.429	(0.087)	2.054	(0.072)	6.352	(0.094)	6.395	(0.148)
2008	81.101	(0.138)	4.460	(0.073)	2.032	(0.050)	5.903	(0.134)	6.503	(0.138)
2009	80.740	(0.334)	4.889	(0.167)	2.235	(0.152)	6.239	(0.209)	5.897	(0.443)
2010	81.059	(0.449)	4.865	(0.176)	2.169	(0.185)	6.242	(0.274)	5.665	(0.499)
2011	80.331	(0.486)	4.697	(0.167)	2.175	(0.157)	6.656	(0.229)	6.140	(0.460)
2012	79.219	(0.380)	4.892	(0.173)	2.364	(0.116)	6.837	(0.229)	6.688	(0.419)
2013	79.243	(0.417)	5.107	(0.113)	2.426	(0.101)	6.950	(0.184)	6.274	(0.325)
2014	78.723	(0.341)	5.083	(0.119)	2.744	(0.082)	7.152	(0.145)	6.298	(0.324)
2015	78.773	(0.328)	5.355	(0.125)	2.945	(0.083)	6.898	(0.186)	6.028	(0.215)
2016	78.707	(0.233)	5.426	(0.090)	2.837	(0.079)	7.370	(0.142)	5.660	(0.216)

Notes: N= 1,321,336. Standard errors are in parentheses.

Appendix Table 5. Estimates from Figure 4. Adjusted probability of working 25-29 hours among those with lower educational attainment by firm size, overall, and by reasons for part-time employment, 2012-2016 (in percent)

	Firms with 49 or fewer employees		Firms with 50-99 employees		Firms with 100 employees or more	
Overall						
2012	3.728	(0.545)	3.679	(0.907)	2.131	(0.384)
2013	3.801	(0.467)	2.199	(0.756)	2.269	(0.335)
2014	3.467	(0.319)	2.128	(0.518)	2.665	(0.244)
2015	2.806	(0.255)	2.264	(0.435)	2.428	(0.202)
2016	3.523	(0.254)	1.952	(0.390)	2.578	(0.177)
Involuntary part-time employment						
2012	1.615	(0.373)	1.364	(0.652)	-0.002	(0.256)
2013	1.495	(0.321)	0.478	(0.529)	0.452	(0.226)
2014	1.560	(0.215)	0.513	(0.329)	0.820	(0.159)
2015	1.287	(0.184)	0.670	(0.258)	0.823	(0.128)
2016	1.437	(0.168)	0.480	(0.200)	0.858	(0.104)
Voluntary part-time employment						
2012	1.981	(0.396)	2.236	(0.633)	2.043	(0.281)
2013	2.101	(0.334)	1.637	(0.541)	1.720	(0.242)
2014	1.790	(0.234)	1.512	(0.392)	1.761	(0.182)
2015	1.443	(0.175)	1.507	(0.345)	1.575	(0.156)
2016	1.892	(0.184)	1.460	(0.340)	1.603	(0.139)
N	35,403		8,725		56,079	

Note: Standard errors are in parentheses.

Appendix Table 6. Estimates from Figure 5. Adjusted probability of working each hour range among those near retirement age, 2005-2016 (in percent)

	35 hours or more		30-34 hours		25-29 hours		24 hours or less		variable hours	
2005	73.677	(0.626)	4.712	(0.245)	2.230	(0.165)	10.927	(0.434)	8.455	(0.305)
2006	73.474	(0.753)	4.540	(0.211)	2.212	(0.169)	11.411	(0.570)	8.364	(0.351)
2007	74.414	(0.593)	4.366	(0.173)	1.906	(0.160)	12.018	(0.486)	7.295	(0.345)
2008	75.266	(0.386)	4.402	(0.183)	1.833	(0.133)	10.971	(0.432)	7.527	(0.347)
2009	76.589	(0.805)	4.861	(0.382)	2.211	(0.261)	9.538	(1.008)	6.801	(0.665)
2010	77.971	(0.869)	4.815	(0.261)	2.192	(0.316)	9.074	(0.908)	5.948	(0.718)
2011	77.081	(0.937)	4.742	(0.305)	2.325	(0.301)	9.217	(0.714)	6.635	(0.626)
2012	76.786	(0.889)	4.528	(0.347)	2.151	(0.237)	9.727	(0.893)	6.808	(0.556)
2013	76.640	(0.728)	4.814	(0.259)	2.195	(0.183)	9.672	(0.582)	6.678	(0.436)
2014	78.183	(0.697)	4.444	(0.223)	2.514	(0.154)	8.499	(0.427)	6.360	(0.358)
2015	77.759	(0.428)	4.083	(0.214)	2.599	(0.118)	9.456	(0.262)	6.103	(0.195)
2016	78.014	(0.527)	4.399	(0.178)	2.355	(0.151)	9.604	(0.382)	5.628	(0.212)

Notes: N= 235,435. Standard errors are in parentheses.

Appendix Table 7. Estimates from Figure 6. Adjusted probability of working 25-29 hours among those with near retirement age by firm size, overall, and by reasons for part-time employment, 2012-2016 (in percent)

	Firms with 49 or fewer employees		Firms with 50-99 employees		Firms with 100 employees or more	
Overall						
2012	1.094	(1.196)	3.634	(1.987)	3.626	(0.697)
2013	1.702	(1.027)	3.126	(1.424)	2.370	(0.535)
2014	3.529	(0.785)	3.147	(1.001)	2.429	(0.384)
2015	3.231	(0.645)	3.414	(1.019)	2.060	(0.319)
2016	3.544	(0.496)	1.397	(0.605)	2.075	(0.266)
Involuntary part-time employment						
2012	0.054	(0.694)	1.658	(1.377)	0.681	(0.266)
2013	0.926	(0.600)	0.615	(0.778)	0.546	(0.172)
2014	0.495	(0.363)	0.351	(0.406)	0.547	(0.138)
2015	0.549	(0.319)	0.748	(0.423)	0.196	(0.091)
2016	0.704	(0.210)	0.090	(0.100)	0.206	(0.094)
Voluntary part-time employment						
2012	0.830	(0.954)	2.249	(1.260)	3.022	(0.631)
2013	0.455	(0.795)	2.703	(1.081)	1.846	(0.495)
2014	2.938	(0.691)	2.223	(0.785)	1.965	(0.352)
2015	2.644	(0.561)	2.640	(0.924)	1.891	(0.304)
2016	2.423	(0.411)	1.309	(0.596)	1.792	(0.244)
N	7,590		2,184		8,429	

Note: Standard errors are in parentheses.