Online Appendix for:
Employment Adjustment and Part-time Work: Lessons from the United States and the United Kingdom

OA.A Data Details

OA.A.1 Data Sources

The Current Population Survey. The Current Population Survey (CPS) is a well-know and much used labor force survey; it has informed numerous studies of worker flows in the U.S. labor market. Each month, it surveys about 60,000 households and collects demographic and employment information on the civilian non-institutional population aged 16 and older. To be precise, the CPS is a survey of addresses, not of households. The occupants of a housing unit are interviewed for 4 consecutive months, are rotated out of the survey for 8 months, and are then included in the survey again for an additional 4 months. These features allow CPS users to match up to three-quarters of the respondents across consecutive months of the survey. We explain below how we exploit the rotational structure of the CPS to construct our main variables.

The CPS underwent a major redesign in January 1994 (Cohany et al. [1994], Polivka and Miller [1998]). Before 1994, the CPS mainly collected individuals' actual hours worked during the reference week and information about usual hours in the survey was therefore very limited.[1] Following the survey's redesign, the CPS started collecting information on the number of usual hours worked, in addition to actual hours. Because of these changes, it is not straightforward to obtain consistent time series over the whole sample period, and we have to implement a number of adjustments presented in Subsections OA.A.2 and OA.A.3.

The Labor Force Survey. The Labor Force Survey (LFS) is a survey of households designed to collect demographic and employment information on the U.K. labor market. The survey started in 1973 but the first available edition in U.K. Data Service is from 1975. During the first decade of its existence the survey was realized every two years and covered only the spring months (March, April and May). From 1984 until 1991 the survey continued to cover the spring months, but at an annual frequency. From the spring quarter of 1992 onwards, the LFS assumed its current format, which is characterized by a longitudinal structure and quarterly frequency. The quarterly survey samples

[1] Between January 1976 and December 1993, when a respondent reports less than 35 actual hours of work, she is prompted to indicate whether she *usually* works less than 35 hours per week. The other information about usual hours available in the CPS during this period come from the Earner Study questions: the respondent is prompted to provide the number of weekly hours worked *at the rate that she reports is her rate of pay.* The Earner Study questions are administered to one-quarter of a CPS sample called the Outgoing Rotation Group (ORG) samples. For reasons that we cannot fathom, the short-run behavior of hours worked in the ORG sample exhibits significant differences with hours worked in the whole CPS sample (see Subsection OA.B.1). Moreover, according to documentation provided by IPUMS-CPS [2017] the qualifier "at this rate" was not always included in the question on usual hours, hence leading to some potential discrepancies over time.

household in Great Britain from 1992Q2 and in the United Kingdom from 1995Q1. In the spring of 2006 the LFS moved from seasonal to calendar quarters.[2] Fortunately, the Office of National Statistics (ONS) produced a series of micro-data extracts based on calendar quarters, which is the one we use in this paper. The current sample includes around 60,000 responding households per quarter and is composed of five rotating waves of equal size. Each household is followed for five consecutive quarters.

The various changes suffered by the LFS over the years pose several challenges to conduct a uniform analysis over the whole period. Since the longitudinal structure was only introduced in 1992, it is not possible to conduct an analysis based on worker flows before that period. Therefore, we combine the annual and quarterly data for the analysis contained in Section 3, while the analysis in the remaining sections is based only on the quarterly survey. Because of our focus on private-sector paid employment, the quarterly series starts in the last quarter of 1993, when the variable identifying this group of workers (PUBLICR) was first introduced.

OA.A.2 Hours per Worker

U.S. Time Series. To construct our time series of actual hours worked in full-time and part-time employment, we proceed as follows. We define a full-time/part-time employment status based on actual hours, which is the only hours information that is consistently available over the whole sample period. We do so for employed respondents who are in either rotation group 1 or 5 of the CPS. Specifically, we use longitudinal matching to retrieve information on their hours worked in the subsequent months of the survey, conditional on employment and a successful longitudinal link.[3] In keeping with the CPS notion of 'usual work schedule', we then classify as part-time workers individuals who have the majority of their employment spells flagged with less than 35 actual hours. The table below explains on a case-by-case basis how we implement our definition:

# employment spells	# empl. spells < 35 hours to be classified as part-time	# longitudinal links			
		0	1	2	3
1	1	5.70	2.49	1.07	15.5
2	2	–	2.61	1.49	11.8
3	2	–	–	1.87	24.5
4	3	–	–	–	33.0

That is, we classify as part-time workers individuals who work less than 35 actual hours in: 1 out of 1, 2 out of 2, 2 out of 3, or 3 out of 4 spells of employment. We experimented other approaches to define part-time employment. We chose this definition over others because it maximizes consistency between our time series and the series where the full-time/part-time employment status is defined using usual hours after January 1994. In Subsection OA.B.1, we provide several other robustness checks demonstrating the validity of our approach.

The triangular matrix in the above table gives the likelihood in percent of each combination (number of longitudinal links × number of employment spells), conditional on being employed in the first month of the observation window. Only 5.70% of employed respondents from either rotation group 1 or 5 cannot be matched forward at least once. For these individuals, the full-time/part-time status is based on 1 observation of their actual hours worked. More than half (24.5+33.0=57.5%) of CPS respondents from rotation group 1 or 5 can be matched longitudinally over the 4 consecutive

[2] Unless otherwise mentioned, U.K. quarters refer to calendar quarters.

[3] We use the household and personal identifiers of the micro-data files along with the age/sex/race filter described by Madrian and Lefgren [2000] to match CPS respondents.

months of interview and are employed in at least 3 of those 4 months. On average from 1976 to 2016, 91.9% of all working-age respondents from rotation group 1 or 5 can be linked to their subsequent CPS interviews at least once, and 82.2% can be linked three times.[4]

Having obtained a consistent classification, we can calculate the time series of actual hours worked in full-time and part-time employment. We use hours for individuals who are employed at the time of the survey and who are either at work or absent from work during the reference week.[5] We correct the values of the time series at several dates where substantial variations in actual hours are caused by a disruption of regular work activities. The dates of these corrections include September 1981, 1987, 1992, 1998, 2009, 2015, when the Labor Day holiday fell on the Monday of the CPS reference week. The dates also include February 1978 and January 1996 when major Winter storms hit parts of the United States.[6] There is no ideal method to address this data issue; our approach is simply to replace the outliers by the average of the time series' first two lags and leads.

U.K. Time Series. Our series of actual hours count weekly hours worked in the respondent's main job. We do so to ensure consistency between our measurement of hours worked and part-time employment status, as in the LFS usual hours are only recorded for the respondent's main job. As indicated in Appendix A of the paper, usual and actual hours include paid and unpaid overtime except between 1977 and 1983 (biennial data), and we make no adjustment for this discrepancy. Prior to implementing the seasonal adjustment procedure, we replace the outliers in the series of actual hours in 1997Q1 and 2006Q2 by the average of each observation's fourth quarter lag and lead.

OA.A.3 Stocks and Flows

We use cross-sectional weights to construct labor market stocks and longitudinal weights to construct gross labor market flows. These weights are provided in the micro-data files of the CPS and the LFS. As is standard, a transition probability is measured by the ratio of a gross flow over a stock.

U.S. Time Series. Our approach that uses actual hours to define a full-time/part-time status is not applicable to the measurement of worker flows. Instead, we use the (limited) information on the usual work schedule of individuals contained in the CPS prior to the 1994 redesign (see Appendix A). We then align these time series to the series constructed after January 1994. Specifically, we follow Polivka and Miller [1998] in adjusting the data using multiplicative factors. For each time series, we compute the adjustment factor by taking the ratio of the mean value in 1994 to the mean value in 1993. The values that we obtain are typically between 1.10 and 1.15, in line with Polivka and Miller [1998]'s estimates (see Table 7.7 in their study).

We conduct two types of validation exercise of our time series:

1. We test and discard any systematic break in January 1994 in the series of transition probabilities that we constructed using multiplicative factors. We do so by running regressions of the series against a high-order polynomial of time, seasonal dummies, and a dummy for the CPS redesign.

[4] This is in line with the matching rates typically achieved with CPS data, taking account of adverse factors such as sample non-response, mortality, migration, and recording errors. Notice, meanwhile, that our approach is to assign a full-time/part-time employment status even to respondents who cannot be matched longitudinally.

[5] Workers on temporary layoffs are classified as unemployed, and therefore they are excluded from this measurement.

[6] We are not the first to point out these data issues. Cociuba et al. [2012] adjust their data on hours worked to control for deviations caused by the Labor Day. The seasonal adjustment procedure of the Bureau of Labor Statistics [2010] accounts for deviations from normal seasonal patterns caused by unusual events, such as major Winter storms.

2. We check and confirm that our time series are consistent with the series derived in Borowczyk-Martins and Lalé [2016b]. In that paper, we obtained consistent time series through a different approach that makes complementary use of the monthly CPS and the annual demographic supplement of the survey.

The results of these validation exercises are available upon request.

U.K. Time Series. To construct our time series of stocks and flows, we use the series of quarterly cross sections and two-quarter longitudinal extracts provided by the U.K. Data Service. The latter contain the variables necessary to calculate labor market transitions. Our series of worker flows are based on seasonal quarters from 1993Q4 until 1997Q1 and on calendar quarters from 1997Q2, which correspond to the data available from the U.K. Data Service. The two-quarter micro-data extract for the last seasonal quarter of 1996 is not available, and we therefore use the corresponding five-quarter extract. Since the series of cross sections are all based on calendar quarters, the margin-error adjustment allows us to deal with potential breaks in the series.

OA.B Robustness Checks

OA.B.1 Defining Part-time Work using Actual Hours

The measurement of U.S. hours per worker conditional on employment status relies on a definition of part-time employment based on actual hours (see the definition presented in Subsection OA.A.2). We check the robustness of our definition in various ways in Table OA.1. For most of the analysis we use data from the CPS after January 1994, when the survey started collecting information on usual hours for all rotation groups. We also analyze data from the Outgoing Rotation Group (ORG) samples of the CPS which contain information about usual hours starting in January 1979.

Analysis. To begin our investigation, we define for each individual a part-time employment status based on our definition (P_b), and an alternative part-time employment status using information on usual hours worked (P_a). In Panel A. of Table OA.1, we report the share of employed individuals who are classified as part-time workers under only one definition. For instance, 1.99% of individuals of working age fall into the part-time employment category under our definition but not under the definition based on usual hours (column 1a). This number remains roughly unchanged if we restrict the sample to prime-age individuals (column 1b), remove multiple jobholders from the sample (columns 2a and 2b), or use a threshold of 30 hours to distinguish full-time from part-time work (columns 3a and 3b). A larger but still modest fraction of individuals (5.23% in column 1a) are classified as part-time workers under the alternative definition as opposed to our definition. Overall, these numbers indicate a fair amount of consistency between the two definitions. The assessment is very similar if we focus on hourly workers, for whom we expect hours worked to be reported more accurately.[7]

Next, we analyze how the definitions underlying P_a and P_b affect the measurement of hours worked in part-time and full-time employment. We clearly do not expect misclassification in part-time employment to occur in a random way. The key question is whether the impact on our time series of hours worked is sizable and sufficient to change our results.

[7]Hourly workers, or workers who are paid by the hour, can be identified using the Earner Study questions administered to the ORG samples of the CPS. In the Earner Study questions, an individual reports the number of weekly hours she usually works at the rate that she reports is her rate of pay. The notion of hourly pay rate is likely more meaningful for hourly workers than for other categories, such as salary employees.

Table OA.1: Defining Part-time Work using Actual Hours in the CPS

A. Fraction (in %) classified differently in part-time employment

	(1a)		(1b)		(2a)		(2b)		(3a)		(3b)	
	$\cancel{P_a}, P_b$	$P_a, \cancel{P_b}$	$\cancel{P_a}, P_b$	$P_a, \cancel{P_b}$	$\cancel{P_a}, P_b$	$P_a, \cancel{P_b}$	$\cancel{P_a}, P_b$	$P_a, \cancel{P_b}$	$\cancel{P_a}, P_b$	$P_a, \cancel{P_b}$	$\cancel{P_a}, P_b$	$P_a, \cancel{P_b}$
All workers	1.99	5.23	1.91	4.21	2.02	4.14	1.93	3.30	1.62	4.41	1.54	3.16
Hourly workers	2.08	7.08	2.03	5.74	2.14	5.72	2.09	4.60	1.65	6.14	1.58	4.36

B. Comparison: Usual hours worked

		(1a)		(1b)		(2a)		(2b)		(3a)		(3b)	
		P	F	P	F	P	F	P	F	P	F	P	F
Mean of h_t^i	base	21.8	44.0	23.4	44.2	21.5	43.3	23.0	43.5	18.3	43.3	19.2	43.7
(in hours)	alt.	23.0	44.2	24.6	44.5	21.7	43.6	23.0	43.8	19.3	43.6	20.4	44.1

C. Comparison: Actual hours worked

		(1a)		(1b)		(2a)		(2b)		(3a)		(3b)	
		P	F	P	F	P	F	P	F	P	F	P	F
Mean of h_t^i	base	23.2	41.7	24.4	42.3	22.5	41.0	23.5	41.6	20.54	41.20	21.9	41.8
(in hours)	alt.	22.6	42.9	24.2	43.2	21.5	42.4	22.9	42.7	19.61	42.35	20.8	42.8
Variance of	base	0.332	0.135	0.484	0.135	0.400	0.139	0.485	0.135	0.448	0.146	0.613	0.146
$\Delta h_{t-1,t}^i$	alt.	0.316	0.141	0.458	0.138	0.417	0.132	0.409	0.136	0.419	0.141	0.539	0.143

D. Comparison with ORG: Actual hours worked

		(1a)		(1b)		(2a)		(2b)		(3a)		(3b)	
		P	F	P	F	P	F	P	F	P	F	P	F
Mean of h_t^i	base	22.9	41.6	24.0	42.1	22.2	41.0	23.1	41.4	20.4	41.1	21.7	41.6
(in hours)	alt.	22.1	42.4	23.4	42.7	22.1	41.8	23.4	42.2	17.9	41.4	18.5	41.9
Variance of	base	0.109	0.027	0.258	0.026	0.153	0.026	0.245	0.024	0.219	0.029	0.405	0.028
$\Delta h_{t-1,t}^i$	alt.	0.028	0.025	0.047	0.027	0.029	0.025	0.051	0.026	0.015	0.027	0.021	0.031

Notes: Current Population Survey, data from 1994Q1 to 2016Q4 in Panels A, B, C, and from 1979Q1 to 2016Q4 in Panel D. Sample: All working-age individuals in (1a), (2a), (3a), prime-age workers in (1b), (2b), (3b). Columns (1a) and (1b): baseline definition of part-time work, baseline sample. Columns (2a) and (2b): baseline definition of part-time work, the sample excludes multiple jobholders. Columns (3a) and (3b): part-time work defined as less than 30 weekly hours, baseline sample. 'base' refers to our baseline definition of full-time/part-time employment based on actual hours; 'alt.' refers to the alternative definition of full-time/part-time employment based on usual hours.

We find, in Panel B. of Table OA.1, that *usual* hours worked on average in part-time and full-time employment are very similar under the definitions considered. In fact, the main appreciable difference is that average hours per worker tend to be higher in both employment categories under the alternative definition. This suggests that our definition implies a slightly lower cutoff to distinguish between part-time and full-time employment, thereby classifying part-timers with the greatest number of hours worked as full-timers. We continue our comparison by looking at *actual* hours in Panel C. of Table OA.1. We find, again, very small differences between the definitions considered in terms of average hours per worker.[8] This conclusion holds true when we change our sample dispositions (columns 2a and 2b) or use a different threshold of hours (columns 3a and 3b). We find small differences as well for *short-run fluctuations* in actual hours worked, which is measured here by the variance of the first-difference in hours $\Delta h_{t-1,t}^i$.[9] The short-run fluctuations of hours also exhibit the same patterns under both definitions, namely more volatility in hours worked in part-time employment.

In Panel D. of Table OA.1, we consider a different time period (starting in January 1979) and we compare our time series to those based on the ORG samples. It should be noted first that the variance of $\Delta h_{t-1,t}^i$ is substantially lower when computed over this longer time period: it is about 2 times lower

[8] Notice that actual hours in full-time employment are on average lower than usual hours. A likely explanation for this is that differences between usual hours and actual hours are mainly caused by events that pull individuals away from work, such as sick leaves, holidays, etc.

[9] Our conclusions are unchanged if we use the deviations of the time series from a filtered trend.

in part-time employment and 4 to 6 times lower in full-time employment. Compared to data from the ORG samples (where the full-time/part-time status is defined using usual hours worked at the pay rate specified in the Earner Study questions), we do not find significant differences in the behavior of hours in full-time employment. However, we find that hours worked in part-time employment are substantially less volatile in the ORG samples: they understate the variance of short-run changes in hours by a factor of 4 to 5. The source of this divergence is unclear to us, but they make the hours series based on the ORG samples suffer from an important drawback. Namely, when we add them up to calculate hours per worker in the aggregate, we cannot match the volatility of actual hours computed using the whole CPS sample. Our baseline time series, on the other hand, line up well with the data along this dimension (see Figure OA.1 in the next subsection).

OA.B.2 Comparison with other Data Series

As an external validity check, we compare the time series of hours per worker constructed from our data (which aggregate hours worked in full-time and part-time employment) with several other data series that have been documented in the literature.

U.S. Hours per Worker. In Figure OA.1, the solid line is our series of U.S. hours per worker shown in Figure 1 in the main text. The dashed line is the time series 'LNS12033251' provided by the Bureau of Labor Statistics (BLS). That series is also based on data from the CPS. Not surprisingly the two lines track each other closely – the difference in levels being caused by differences in sample selection. The other line shows the series of hours per worker from the study by Ohanian and Raffo [2012] (hereafter OR12). OR12 use estimates from the Current Establishment Survey (CES) on paid hours of nonsupervisory workers in the business sector. It is well known and well documented that the CES yields very different hours series compared to the CPS; see, among others, Frazis and Stewart [2010].[10] The large discrepancy between the levels of hours per worker measured by the OR12 series (which is plotted against the right axis) vs. our own series and that of the BLS is therefore in line with previous literature. Despite the difference in levels, the three time series paint a similar picture of the dynamics of hours per worker, at least since the late 1980s. In sum, Figure OA.1 does not indicate any inconsistency between our series of U.S. hours per worker and existing estimates.

U.K. Hours per Worker. Figure OA.2 compares our series of U.K. hours per worker to a series calculated by Blundell et al. [2013] (hereafter BBL13) and to the U.K. series taken from OR12. We think this validation exercise is especially important for the U.K. because the ONS deems the LFS data fully reliable only from 1992 onwards.[11] The ONS advises users to carefully consider using the two datasets prior to 1979, and although the variable definitions, sample weighting, etc. became much more consistent in the annual survey available from 1984 onwards, there remain some discrepancies across periods.

Figure OA.2 shows that our time series provides an almost exact same picture of the recession of the early 1980s as the BBL13 series. The very large swing in actual hours per worker from 1977 to 1983 contrasts with the much smoother variation depicted by the OR12 series. The reason for this difference

[10] Frazis and Stewart [2010] provide a careful analysis of the different factors that could drive these differences. These include: differences in coverage between the CPS and the CES, multiple jobholding, differences between hours paid and hours worked, overreporting of hours in the CPS, and differences in the reference period of the two surveys.

[11] The ONS official series based of hours per worker from the LFS start in 1992. See e.g. the series of seasonally-adjusted average actual weekly hours of work, denoted YBUV, and available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/labourmarketstatistics.

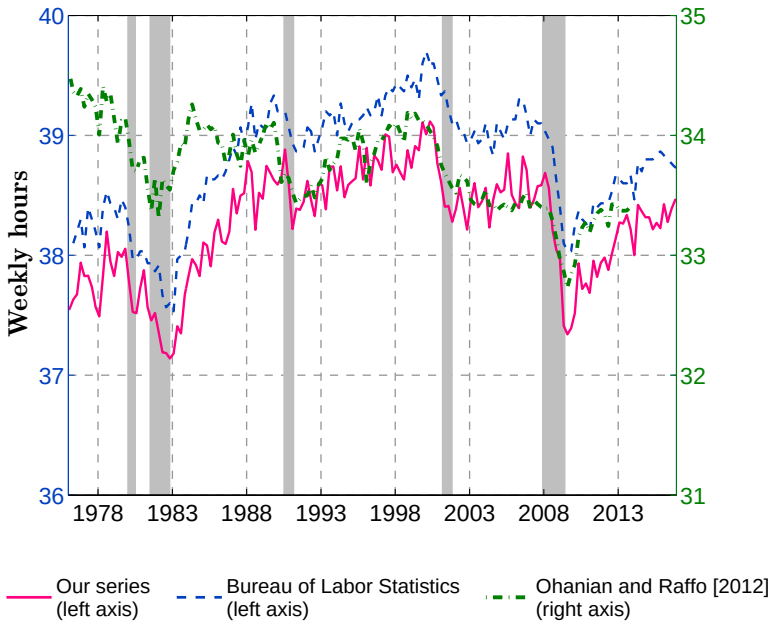


Figure OA.1: U.S. Hours per Worker, 1976–2016: Comparison with other Data Series

Notes: Solid line: Current Population Survey, quarterly average of monthly data, all working-age individuals in private-sector paid employment. Dashed line: LNS12033251 from the Bureau of Labor Statistics, quarterly average of monthly data, individuals aged 16 and over at work in nonagricultural industries. Dashed-dotted line: quarterly data from Ohanian and Raffo [2012] (the series is plotted against the right axis), based on estimates from the Current Establishment Survey, paid hours of nonsupervisory workers in the business sector. Gray-shaded areas indicate NBER recession periods.

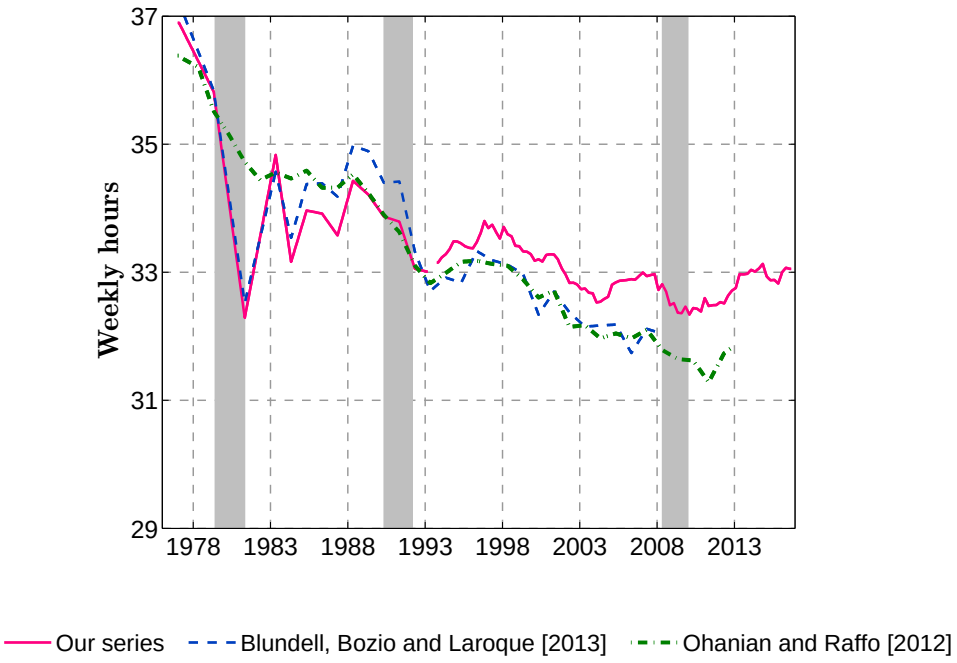


Figure OA.2: U.K. Hours per Worker, 1977–2016: Comparison with other Data Series

Notes: Solid line: Labor Force Survey, biennial data from 1977 to 1983, annual data from 1984 to 1993, quarterly data from 1993 to 2016; see the footnote to Figure 3 in the text for details. Dashed line: data from Blundell et al. [2013] based on the Labor Force Survey, same frequency as for the solid line, all employed individuals aged 16 to 74. Dashed-dotted line: quarterly data from Ohanian and Raffo [2012], based on data from the Labor Force Survey provided by the Office for National Statistics, all working-age individuals. Gray-shaded areas indicate ECRI recession periods.

is easy to detect. Unlike BBL13, OR12 is based on two ONS data series that use establishment-level data for this earlier period, namely MGRZ (Employment, 16 and over, seasonally adjusted) and YBUS (Total Hours Actually Worked, 16 and over, seasonally adjusted). While OR12 for this period appears more credible, only the LFS data allows one to relate fluctuations in part-time employment and hours per worker. The similarity across the three time series is much greater during the 1990s recession. The drop in hours per worker is somewhat larger in BBL13 compared to the other two series. Finally, during the Great Recession our time series and BBL13 behave very similarly. Thus, at least for the past three decades which include two large recessions, the time series that we construct lines up well with the data from OR12 and BBL13.

OA.B.3 Reasons for Involuntary Part-time Work

We investigate whether the stated reasons for involuntary part-time work provide robust information about the labor market trajectory of workers. To do so, we use the longitudinal structure of the CPS to match respondents across four consecutive months. We consider two types of trajectories: (i) two months in full-time employment (F) followed by two months of involuntary part-time work, and (ii) two months in unemployment (U) followed by two months of involuntary part-time work.[12] We denote by SW involuntary part-time work due to slack work conditions and by CF involuntary part-time work because the worker cannot find a full-time job. Trajectories (i) and (ii) are depicted respectively in the left part and the right part of Figure OA.3.

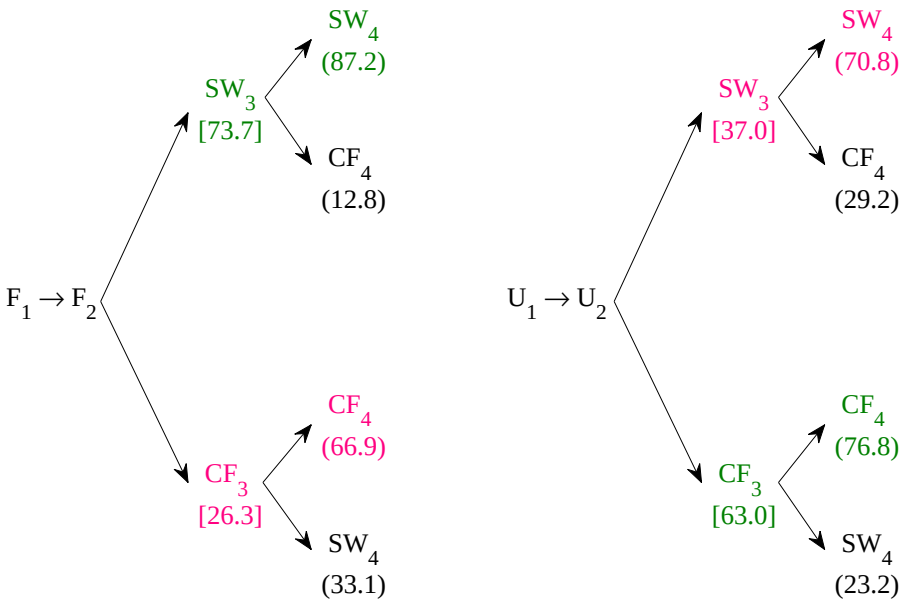


Figure OA.3: U.S. Reasons for Involuntary Part-time Work

Notes: Current Population Survey, pooled data from 1994 to 2016, all working-age individuals in private-sector paid employment. CF_t: employed part-time involuntarily because the worker cannot find a full-time job; F_t: employed full-time; SW_t: employed part-time involuntarily due to slack work conditions; U_t: unemployed. The time t subscript on these four labor market states indicates the month of interview of the respondent. The numbers in brackets are in percentage points; see the text for details.

[12] We look at spells in which the labor market status of the individual is consistent across two consecutive months in order to minimize measurement error.

For spells of involuntary part-time work preceded by full-time employment, the stated reason initially in month 3 is "slack work conditions" in 73.7% of all cases. Out of this very large fraction, 87.2% keep reporting "slack work conditions" as the main stated reason in month 4. These findings dovetail well with Facts 3 and 5 documented in the paper. Conversely, spells that are preceded by unemployment often involve "cannot find a full-time job" as the main stated reason in month 3 (63.0%), which persists in month 4 in 76.8% of cases. The non-negligible share of SW that we observe among previously unemployed workers is perhaps explained by the fact that "slack work conditions" is a broader phenomenon.[13] All in all, the stated reasons "cannot find a full-time job" and "slack work conditions" appear reasonably linked to the previous status of individuals to convey robust information about their labor market trajectories.[14]

OA.C Additional Facts

OA.C.1 Hours Worked in Full-time and Part-time Employment

In this subsection, we provide additional information about hours worked in full-time and part-time employment.

Time Series. We begin with the 'dynamic' information provided by the time series of hours worked conditional on employment status. Figure OA.4 shows time series of hours per worker in full-time and part-time work for the U.S. and the U.K. In each plot the solid lines denote the series calculated for all working-age individuals and the dashed lines the series for prime-age individuals.

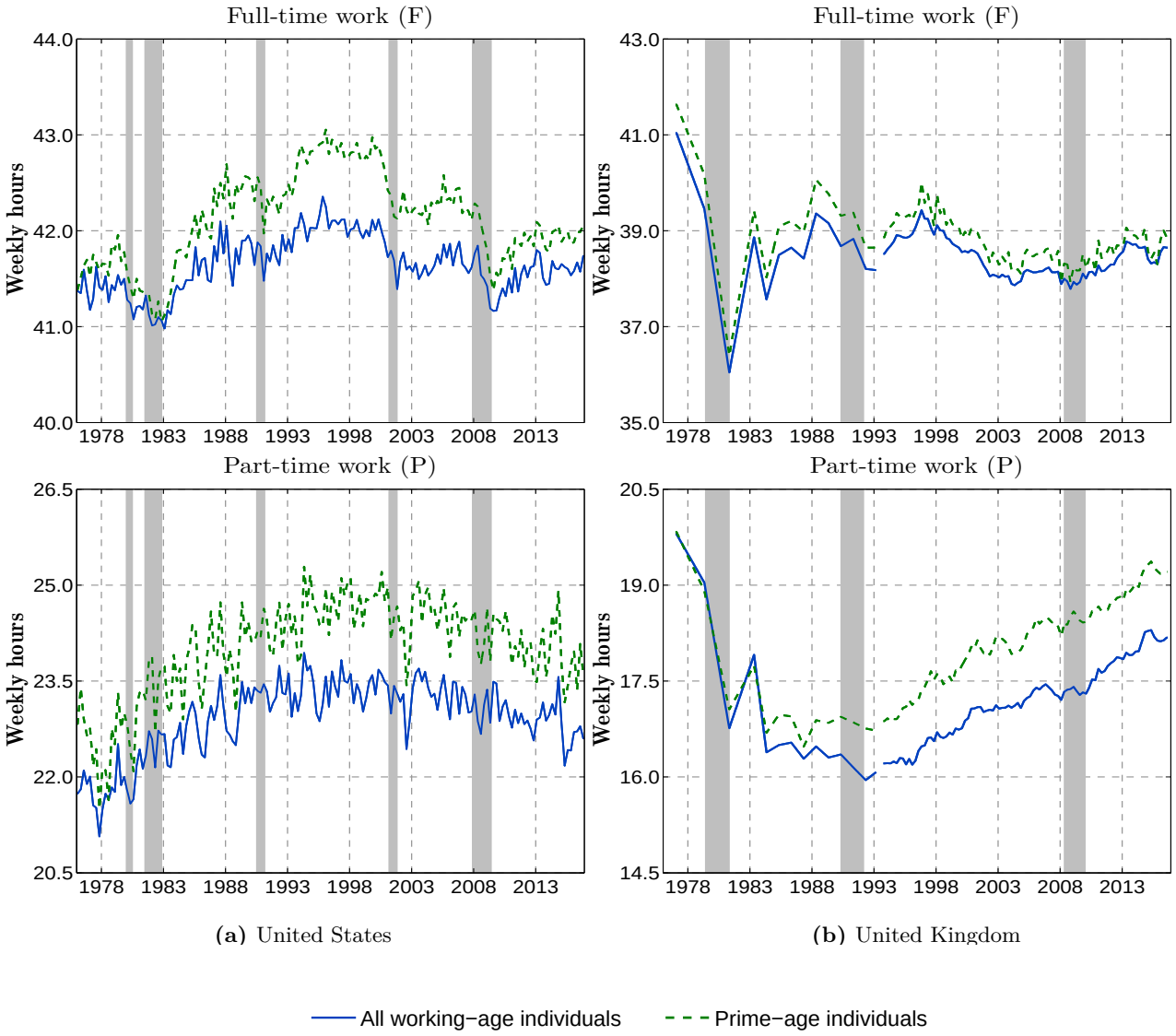
The plots in Figure OA.4 complement the results presented in Section 3 of the paper ("Hours per Worker and Part-time Employment"). Specifically, the time series highlight the procyclicality in hours per worker in full-time employment and the lack thereof in part-time employment. There is also substantial short-run variation in the U.S. series of hours per worker in part-time employment. By comparison with the U.S., the U.K. patterns are unstable across recessions. In the 1980s recession hours per worker dropped for both employment categories, whereas they fell by much less in the Great Recession. Despite the presence of trends in some of the time series, the differences in average hours worked across the two employment categories are sizable over the whole sample period. On average, full-time employment entails a schedule of working hours that is about twice that of part-time employment.

Histograms. In order to offer more detail on hours worked, we report 'static' information provided by the distribution of hours worked in the two employment categories. In Figure OA.5, the graphs display the distribution of both actual (solid bars) and usual hours (dashed bars) among working-age individuals.

The distributions of (actual and usual) hours worked exhibit a number of remarkable features. First, there are clear mass points in the interval between 20 and 50 hours, which is where most of the probability mass is concentrated. In full-time employment, the most common schedule seems to be 5 days of 8 hours reflected by the mass point at 40 weekly hours. In part-time employment, the mass

[13] Consider for instance a worker who is hired part time with the 'understanding' that she will be promoted to full time once demand picks up. It is conceivable that she reports "slack work" instead of "cannot find a full-time job" as her main reason for working part-time involuntarily.

[14] In addition, out of all the newly involuntary part-time workers facing "slack work conditions" in a given month, 47.6% were in full-time employment while only 10.6% were unemployed in the previous month.



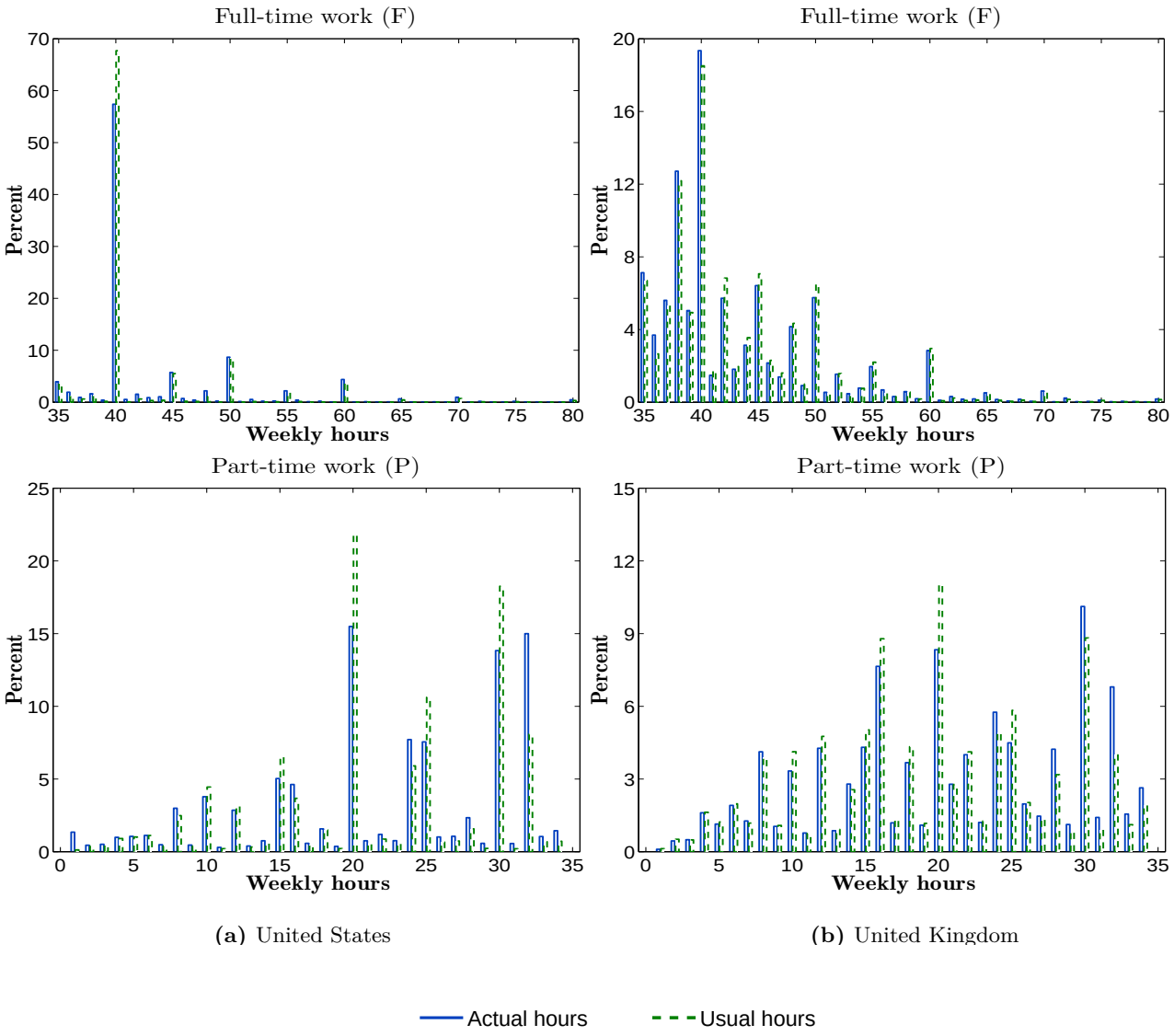
(a) United States **(b)** United Kingdom

Figure OA.4: Time Series of Hours Worked in Full-time and Part-time Employment

Notes: Fig. OA.4a: Current Population Survey, quarterly average of monthly data. Fig. OA.4b: Labor Force Survey, biennial data from 1977 to 1983, annual data from 1984 to 1993, quarterly data from 1993 to 2016. Sample: individuals in private-sector paid employment. The line show actual hours per worker in full-time and part-time employment. Gray-shaded areas indicate NBER and ECRI recession periods.

points are observed at intervals divisible by 5, and also at 24 and 32 hours, both of which are divisible by 8. A workweek of 20 hours, for instance, could reflect 4 half working days (of 5 hours each) while a workweek of 32 hours could indicate 4 full working days (of 8 hours each). Second, as shown by the difference in scale of the vertical axis, the mass points in the U.K. data are overall lower, and hours are more evenly distributed within the 20-50 hours interval. Clearly, the main difference with the U.S. comes from the mass point at 40 weekly hours. This is consistent with the greater prevalence of the "Monday-Friday 9am–5pm" schedule in this country.

To better understand the differences between the solid and dashed bars in Figure OA.5, we study the distribution of the differences between usual and actual hours at the individual level (see the earlier version of the paper available as IZA working paper #9847, 2016a). We find that between a quarter (U.S.) and a third (U.K.) of individuals report different usual and actual hours. Conditional on reporting different usual and actual hours, the resulting difference can be large: in the U.S., the



(a) United States **(b)** United Kingdom

Figure OA.5: Distribution of Hours Worked in Full-time and Part-time Employment

Notes: Current Population Survey (Fig. OA.5a) and Labor Force Survey (Fig. OA.5b), pooled data from 2003 to 2006, all working-age individuals in private-sector paid employment. The histograms show the distribution of hours worked conditional on full-time and part-time employment. The solid (dashed) bars denote the distribution of actual (resp. usual) hours. The figures on the vertical axis are reported in percent.

difference among individuals whose usual hours are higher than their actual hours is 10.5 hours on average. Therefore, a likely scenario is that some workers who usually work 40 weekly hours report actual hours below the 35 hours threshold, but remain in the upper part of the distribution of hours worked among part-time workers. This would shift part of the probability mass at 40 weekly hours towards the interval between 20 and 34 hours. The differences between the solid and dashed bars are more difficult to fathom for the U.K.

OA.C.2 Descriptive Statistics on Part-time Work

In Tables OA.2 and OA.3, we characterize part-time work with respect to the demographic characteristics of workers and their industries and occupations of employment. The statistics shown in the tables substantiate Subsection 3.3 of the paper ("Taking Stock"), namely when we point out the differences between the two labor market states (full-time and part-time employment). They also

give some background for the discussion of composition effects in Subsection 5.3 of the paper ("An Examination of Alternative Hypotheses").

As one would expect, the composition of employment in terms of gender and age is very similar across the U.S. and U.K. labor markets (columns 1 of Panels A. to B.). That similarity extends to the composition of part-time employment, which is concentrated on women and younger individuals (aged 16 to 24) (columns 2 of Panels A. to B.). The younger take a large share of part-time employment in the U.S., whereas women account for a greater share of part-time work in the U.K. The flip side of these patterns are sharp differences in the extent of part-time work across different groups of workers (columns 3 of Panels A. to B.). Although part-time work is a pervasive form of employment (affecting all workers), women and the younger are disproportionately affected. Consistent with the differences cited above, there is greater heterogeneity in part-time employment shares by gender in the U.K. and by age in the U.S. For sake of space, we do not report time series by gender. We observe that the cyclical behavior of part-time employment is similar among men and women in the U.S., whereas in the U.K. part-time employment is more cyclical among women. For men in the U.K., part-time employment exhibits an upward trend over the whole sample period.

Although the CPS and the LFS use different categories for educational attainment, industries and occupations, a number of common features for the U.S. and the U.K. emerge from Tables OA.2 and OA.3. First, it seems worth pointing out the lower intensity of part-time employment among the more highly educated. A closer look at the time series by education also shows that part-time employment is more cyclically sensitive among less educated workers. Second, the U.S. and the U.K. are also similar in terms of the segments of the labor market that are more intensive in part-time work. In both countries, part-time employment is concentrated (mainly) in retail trade and in sales and services occupations. Third, the part-time employment share displays considerable variation among the main industry and occupation categories of employment. This is especially striking for occupations: part-time employment shares in the main occupations go from 4.4 to 43.9% in the U.S., and from 5.9 to 70.3% in the U.K. The figures in those columns also highlight that part-time work is widespread, covering a nonnegligible share of employment in very distinct industries and occupations in both countries.

OA.C.3 Dynamics of Part-time Work in U.S. Recessions

Table OA.4 complements the results discussed in Subsection 4.3 of the paper ("Decomposing the Variation in Part-time Employment"). The table reports the set of γ^{ij} coefficients quantifying the contribution of different transition hazards to changes in the part-time employment share during the four U.S. recessions covered by our sample. In the main text, only the coefficients for the peak to through of the Great Recession are shown.

The table confirms a number of findings presented in the paper. First, and foremost, it reiterates Fact 2: that the cyclical behavior of transitions between full-time and part-time work is the main driver of fluctuations in part-time employment. Moreover, for the Twin Recessions of the 1980s and the Great Recession, we see that the sum $\gamma^{FP}+\gamma^{PF}$ comes close to the sum of the variance contribution coefficients $\beta^{FP}+\beta^{PF}$ analyzed in Subsection 4.3. In this respect, the dynamic variance decomposition does seem to capture well the sources of variation operating during cyclical swings in the labor market. Second, the coefficient γ^{FP} confirms that the U.S part-time employment share during recessions is predominantly driven by the inflows from full-time employment (i.e. p^{FP}). It also shows that these patterns were never as pronounced as during the Great Recession and its aftermath. Third, the table

Table OA.2: Part-time Employment, Descriptive Statistics for the United States

	% of population		Part-time
	employed	part-time	share (ω^P)
	(1)	(2)	(3)
All	–	–	17.3
A. Gender			
Men	54.6	31.9	10.1
Women	45.4	68.1	25.9
B. Age (in years)			
16 to 24	16.9	41.4	42.4
25 to 34	23.7	16.6	12.1
35 to 44	25.3	16.7	11.4
45 to 54	22.5	14.3	11.0
55 to 64	11.7	11.0	16.3
C. Education			
Low	13.1	21.8	28.7
Middle	31.2	26.2	14.5
High	24.2	30.3	21.7
Very high	31.5	21.7	11.9
D. Industry (top 5 by employment)			
Retail Trade	22.1	42.5	32.3
Professional and Related Services	21.6	26.8	20.8
Manufacturing, Nondurable Goods	10.2	1.77	2.93
Construction	8.87	3.22	6.09
Business and Repair Services	7.34	5.51	12.6
E. Occupation (top 5 by employment)			
Office and Administrative Support	15.5	22.2	24.2
Production	14.5	4.77	5.53
Management in Business, Sciences and Arts	11.9	3.71	5.24
Transportation and Material Moving	8.09	6.89	14.3
Food Preparation and Serving	7.53	20.1	44.9

Notes: Current Population Survey, pooled data from 2003 to 2006, all working-age individuals in private-sector paid employment. In Panel C., Low is "Less than high-school", Middle is "High-school graduates", High is "Some college", Very high is "College or higher education". In Panels D. and E., industries and occupations are the two-digit categories of the 2000 Census classification schemes. In Panels D. and E., the statistics are for the five industries/occupations with the highest share of private-sector paid employment. All entries are reported in percent.

Table OA.3: Part-time Employment, Descriptive Statistics for the United Kingdom

	% of population		Part-time
	employed	part-time	share (ω^p)
	(1)	(2)	(3)
All	–	–	25.3
A. Gender			
Men	57.1	22.8	10.1
Women	42.9	77.2	45.5
B. Age (in years)			
16 to 24	19.3	28.9	37.9
25 to 34	24.1	17.2	18.1
35 to 44	25.1	22.7	22.9
45 to 54	19.3	16.4	21.6
55 to 64	12.2	14.8	30.8
C. Education			
Low	23.7	27.8	29.8
Middle	51.5	57.1	28.1
High	24.8	15.1	15.4
D. Industry (top 5 by employment)			
Wholesale, Retail and Motor Trade	21.4	35.1	41.6
Manufacturing	19.6	6.8	8.7
Real Estate, Renting and Business Activities	13.6	10.1	18.8
Transport, Storage and Communication	8.4	4.3	12.9
Construction	7.4	2.5	8.6
E. Occupation (top 5 by employment)			
Sales Assistants and Retail Cashiers	8.9	24.1	68.4
Functional Managers	6.0	1.4	5.9
Elementary Personal Service Occupations	3.9	10.1	70.3
Administrative Occupations in Finance	3.8	5.1	34.5
Transport Drivers and Operatives	3.5	1.4	9.7

Notes: Labor Force Survey, pooled data from 2003 to 2006, all working-age individuals in private-sector paid employment. In Panel C., Low is "Primary education (below GCSE)", Middle is "Secondary Education (A-level, GCSE or equivalent)", High is "Higher Education or more". In Panel D., industries are the 17 sections of the Standard Industry Classification of 1992. In Panel E., occupations are the two-digit occupation groups of the Standard Occupational Classification of 2000. In Panels D. and E., the statistics are for the five industries/occupations with the highest share of private-sector paid employment. All entries are reported in percent.

Table OA.4: Dynamics of the U.S. Part-time Employment Share during Recessions

	1980Q1 to:		1990Q3 to:		2001Q1 to:		2007Q4 to:	
	1982Q4	1983Q4	1991Q1	1992Q1	2001Q4	2002Q4	2009Q2	2010Q2
A. All working-age individuals								
(i) Full- and part-time employment								
γ^{FP}	45.3	34.2	74.7	69.0	173.2	143.4	59.7	66.0
γ^{PF}	23.4	29.8	57.0	63.7	41.5	31.2	27.6	6.38
$\gamma^{FP} + \gamma^{PF}$	68.7	64.0	131.7	132.7	214.6	174.6	87.3	72.3
(ii) Other and non-employment								
γ^{X}	2.86	-1.25	-14.8	-13.2	-2.46	0.99	-3.90	6.12
γ^{U}	25.4	32.3	-1.91	15.6	-25.8	13.5	23.0	26.3
γ^{N}	3.06	4.94	-15.0	-35.1	-86.4	-89.1	-6.41	-4.74
B. Prime-age individuals								
	1980Q1 to:		1990Q3 to:		2001Q1 to:		2007Q4 to:	
	1982Q4	1983Q4	1991Q1	1992Q1	2001Q4	2002Q4	2009Q2	2010Q2
(i) Full- and part-time employment								
γ^{FP}	62.0	51.9	91.4	86.1	64.0	76.6	69.9	76.6
γ^{PF}	12.4	17.8	41.0	47.3	-3.48	-23.0	10.1	0.59
$\gamma^{FP} + \gamma^{PF}$	74.4	69.7	132.4	133.3	60.5	53.5	80.0	77.2
(ii) Other and non-employment								
γ^{X}	1.78	-0.32	-8.62	-3.96	-4.57	-9.43	-3.83	1.70
γ^{U}	19.7	18.6	-16.8	-5.65	59.7	44.8	30.3	25.6
γ^{N}	4.11	12.1	-7.04	-23.7	-15.6	11.1	-6.44	-4.50

Notes: Current Population Survey, 1976-2016. The table reports the contribution of transitions between employment states (FP, PF), their sum, and the contribution of other states (X, U, N) to the predicted changes in the part-time employment share during U.S. recessions. Panels A. (Panel. B) displays the results for working-age (prime-age) individuals. All entries are reported in percent. The sum $\gamma^{FP} + \gamma^{PF} + \gamma^{X} + \gamma^{U} + \gamma^{N}$ in each column of each panel may not add up to 100 due to rounding.

shows, once again, that the 2001 recession differs from the standard U.S. recession: during that episode, the transition probability from part-time to full-time employment, p^{PF}, contributed *negatively* to the dynamics of the part-time employment share. This outcome is also visible in the behavior of the time series reported in Figure 6 of the paper.

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