The Non Accelerating Inflation Rate of Underemployment (NAIRU)

IZA Workshop: Labor Markets and the Phillips Curve: What Has Changed in the Past 60 Years?

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- With David Bell (2020), 'Underemployment in Europe and the United States,' in ILR Review forthcoming
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- With David Bell (2019), 'The well-being of the overemployed and the underemployed and the rise in depression in the UK,' Journal of Economic Behavior and Organization, 161, May, pp. 180-196.
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- With David Bell (2018), 'Underemployment and the lack of wage pressure in the UK,' National Institute Economic Review, No. 243, February, pp. R53-R61.
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- With Andrew Oswald (1994b), 'Estimating a wage curve for Britain", 1973-1990′, Economic Journal, pp.1025-1043.
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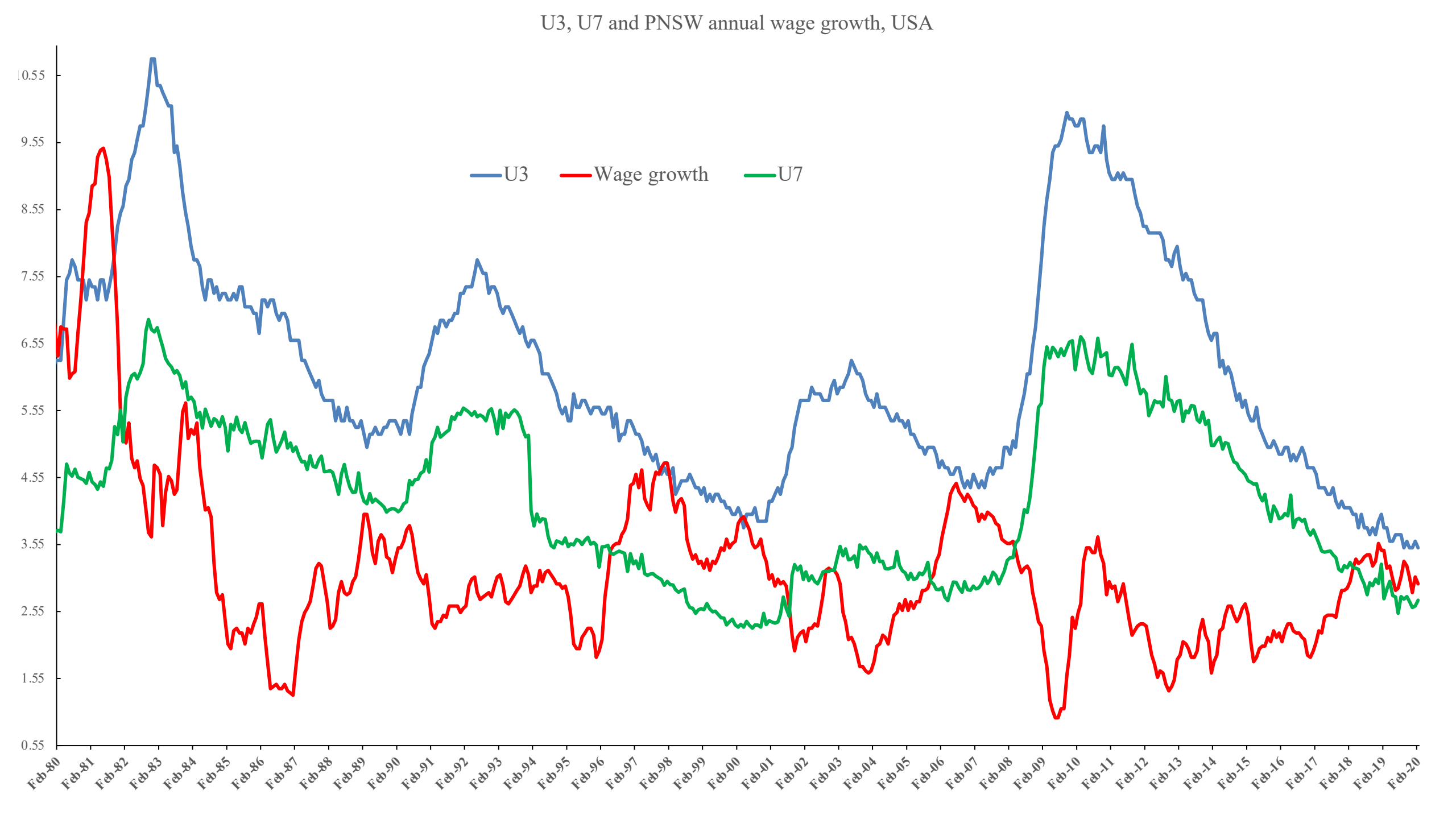
Underemployment is the new measure of labor market slack

- In the past the unemployment rate was the best measure of labor market slack. No longer.
- Large numbers of workers around the world, both those who choose to be part-time and those who are there involuntarily and full-timers report they want more hours (the underemployed). Others (PT & FT) want fewer hours (the overemployed). Both are unhappy being off their labor supply curves.
- When recession hit in most countries the number of hours of those who said they wanted more hours, rose sharply and there was a fall in the number of hours that full-timers wanted their hours reduced by.
- Even though the unemployment rate has returned to its pre-recession levels in many advanced countries, underemployment in most has not.
- In the US we have no measures of overemployment but only PTFER/Empt=U7 and PT wants FT /Empt in UK
- Underemployment replaces unemployment as the main outsider influence on wages in the years since the Great Recession. This largely explains the lack of wage pressure


U3, U7 and PNSW annual wage growth, USA
U3
Wage growth
U7
10.55
9.55
8.55
7.55
6.55
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4.55
3.55
2.55
1.55
0.55
Feb-80
Feb-81
Feb-82
Feb-83
Feb-84
Feb-85
Feb-86
Feb-87
Feb-88
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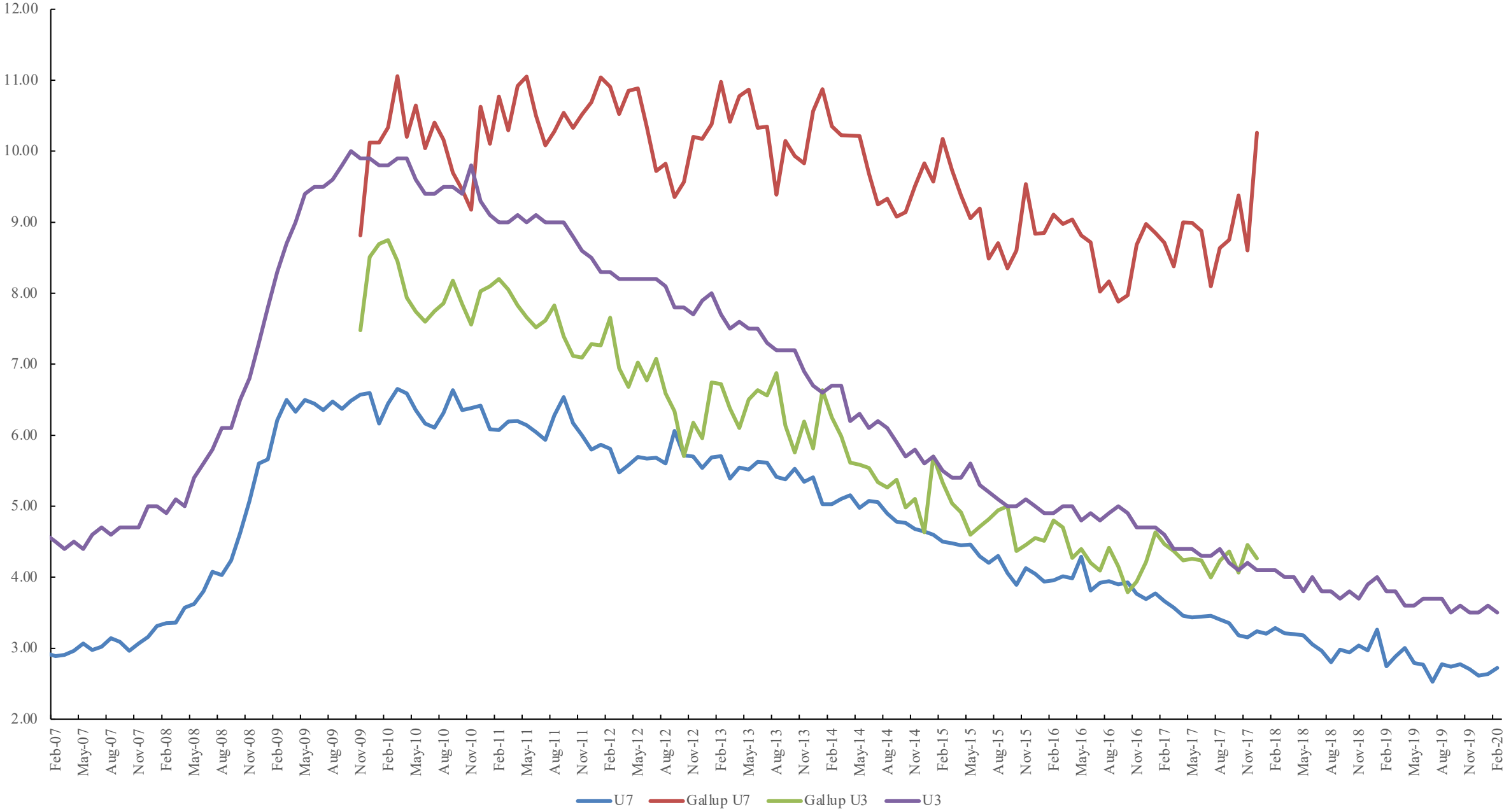
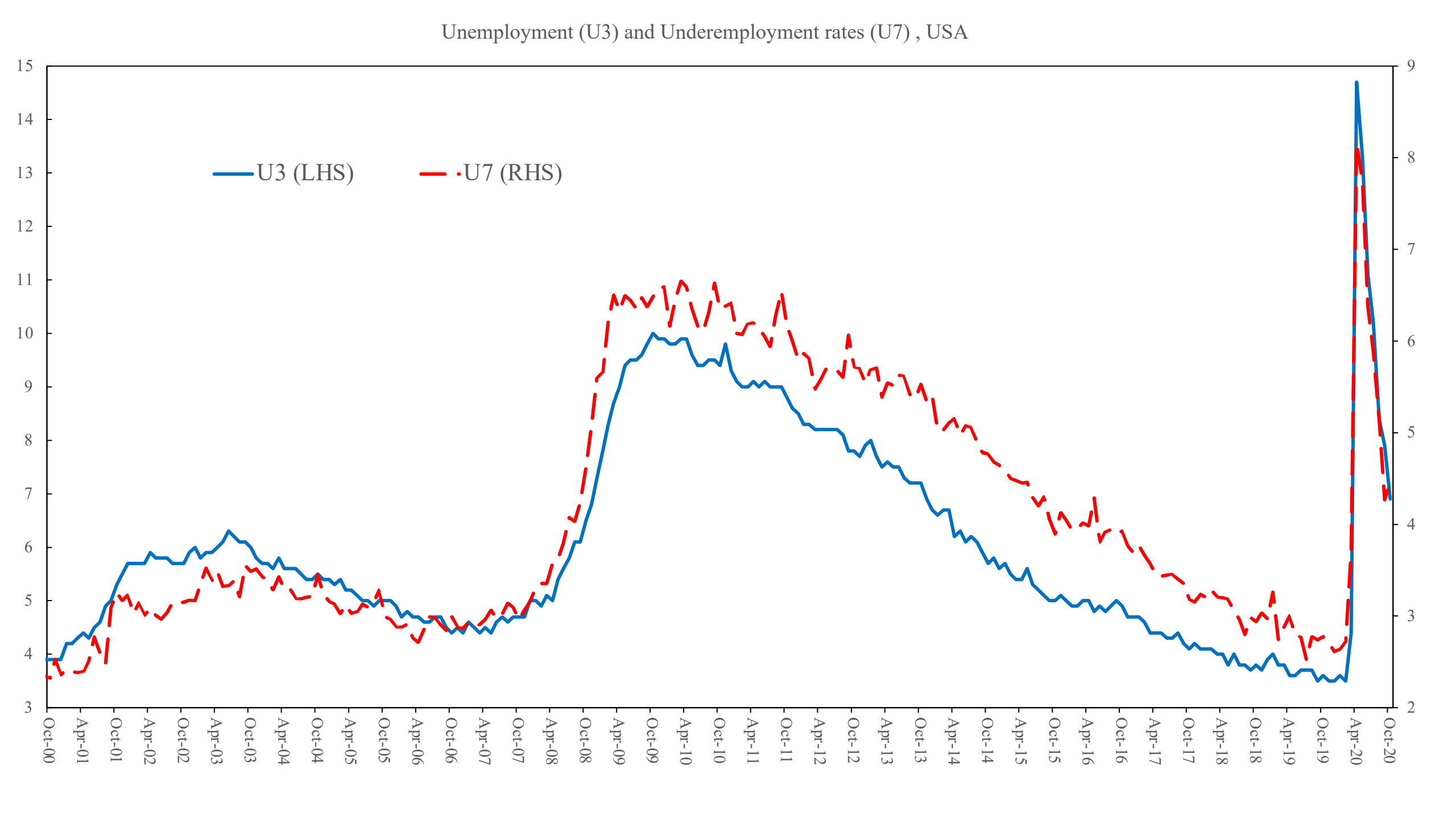
Chart 1. Monthly Unemployment and Underemployment Rates Gallup and BLS, USA, 2007-2020




Unemployment (U3) and Underemployment rates (U7) , USA
U3 (LHS)
U7 (RHS)
15
14
13
12
11
10
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8
7
6
5
4
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9
8
7
6
5
4
3
2
Oct-00
Apr-01
Oct-01
Apr-02
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Apr-03
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Oct-20

US unemployment rates corrected for misspecification errors %

	Unadjusted	Adjusted
March	4.6	5.9
April	14.5	19.7
May	13.0	16.5
June	11.2	13.0
July	10.4	11.9
August	8.4	9.7
September	7.6	8.5
October	6.9	7.2

BLS and Census Bureau analyses of the underlying data suggest there still may be some workers affected by the pandemic who should have been classified as unemployed on temporary layoff. However, the share of responses that may have been misclassified was highest in the early months of the pandemic and has been considerably lower in recent months.

US Annual Weekly Wage Growth Production and Non-Supervisory Workers (%)

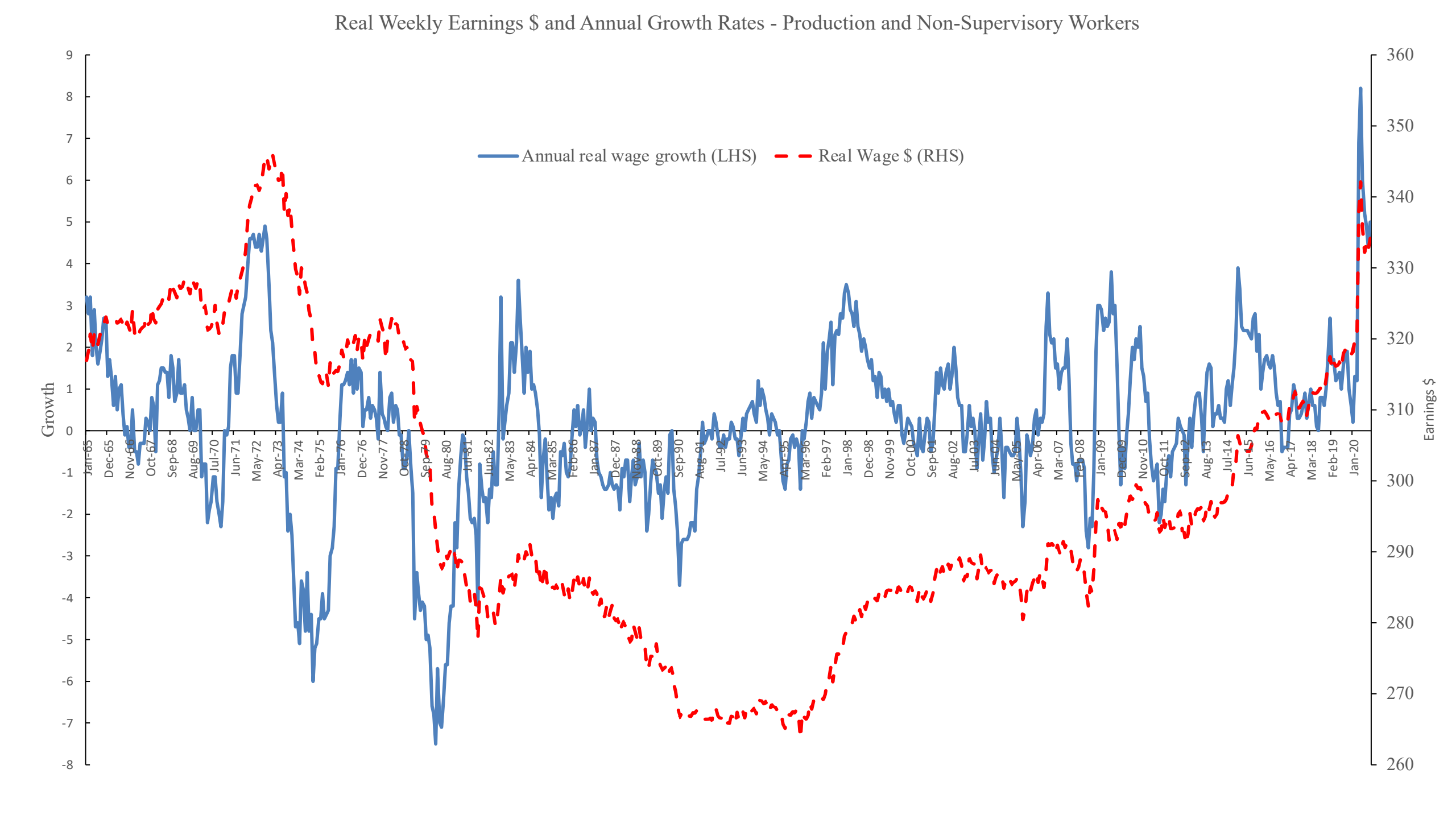
	Nominal	Real
January	2.7	0.2
February	3.6	1.3
March	2.6	1.2
April	7.0	6.9
May	8.2	8.2
June	6.6	6.0
July	6.2	5.2
August	6.4	4.9
September	6.1	4.4
October	6.3	5.0

The Bottom of the Wage Distribution Has Dropped Out in 2020

Usual median weekly earnings growth, FT workers 2020 %

	2020Q1	2020Q2	2020Q3
All	5.7	10.4	8.2
Whites	4.8	9.0	6.9
Blacks	5.2	11.2	11.8
Asians	5.5	16.0	11.6
Hispanics	3.6	12.9	9.3

Source: Usual Weekly Earnings, BLS, October 16, 2020


Real Weekly Earnings $ and Annual Growth Rates - Production and Non-Supervisory Workers
Annual real wage growth (LHS)
Real Wage $ (RHS)
Growth
Earnings $
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
-8
360
350
340
330
320
310
300
290
280
270
260
Jan-65
Dec-65
Nov-66
Oct-67
Sep-68
Aug-69
Jul-70
Jun-71
May-72
Apr-73
Mar-74
Feb-75
Jan-76
Dec-76
Nov-77
Oct-78
Sep-79
Aug-80
Jul-81
Jun-82
May-83
Apr-84
Mar-85
Feb-86
Jan-87
Dec-87
Nov-88
Oct-89
Sep-90
Aug-91
Jul-92
Jun-93
May-94
Apr-95
Mar-96
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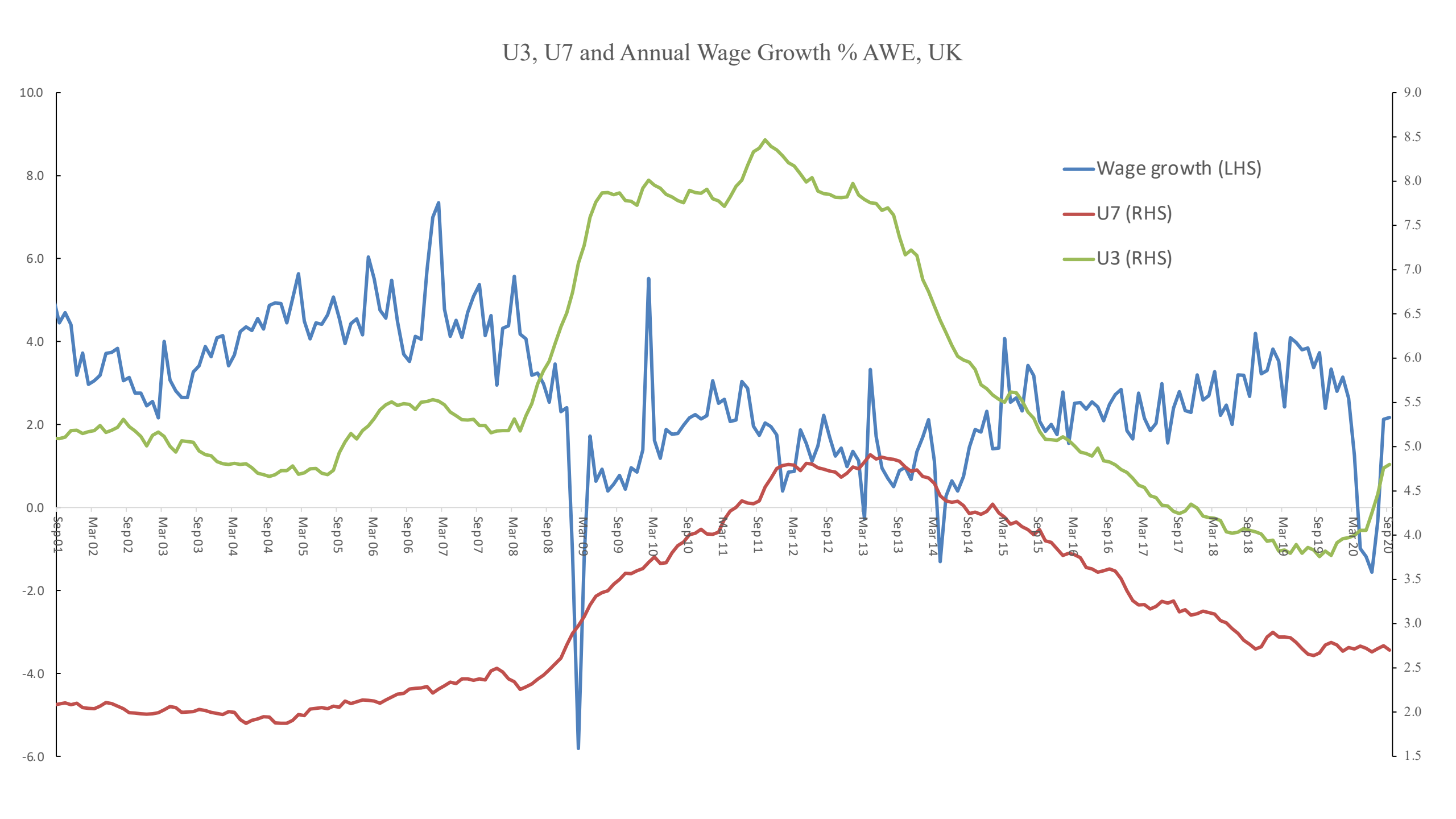
U3, U7 and Annual Wage Growth % AWE, UK
Wage growth (LHS)
U7 (RHS)
U3 (RHS)
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
9.0
8.5
8.0
7.5
7.0
6.5
6.0
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4.5
4.0
3.5
3.0
2.5
2.0
1.5
Sep 01
Mar 02
Sep 02
Mar 03
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Sep 20

Bell/Blanchflower Index

- . We construct an *overhrs* (*undhrs*) variable for those who say they want less (more) hours at the going wage rate from the LFS

- Those who wish to increase (decrease) their hours have *undhrs (overhrs)* set to zero. If individuals express no preference to change their hours, both variables are set to zero, which seems non-controversial.

- Questions over hours preferences are asked of all workers, not just of those who are PTWFT.

- This potentially matters because the data suggests that less than a third of aggregate desired increases in hours come from those who are PTWFT.

- In the US, only PTFER is available from the Current Population Survey, so it is not possible to measure desired increases or decreases in hours, and therefore impossible to assess the contribution of PETR to aggregate changes in desired hours.

- We have used these nationally representative data to construct an underemployment rate each quarter from 2000-2016 for 26 European countries and quarterly for the UK.


Chart UK Underemployment and overemployment in hours space '000s
48.000
46.000
44.000
42.000
40.000
38.000
36.000
34.000
32.000
30.000
28.000
26.000
24.000
22.000
20.000
2001 q2
2001 q4
2002 q2
2002 q4
2003 q2
2003 q4
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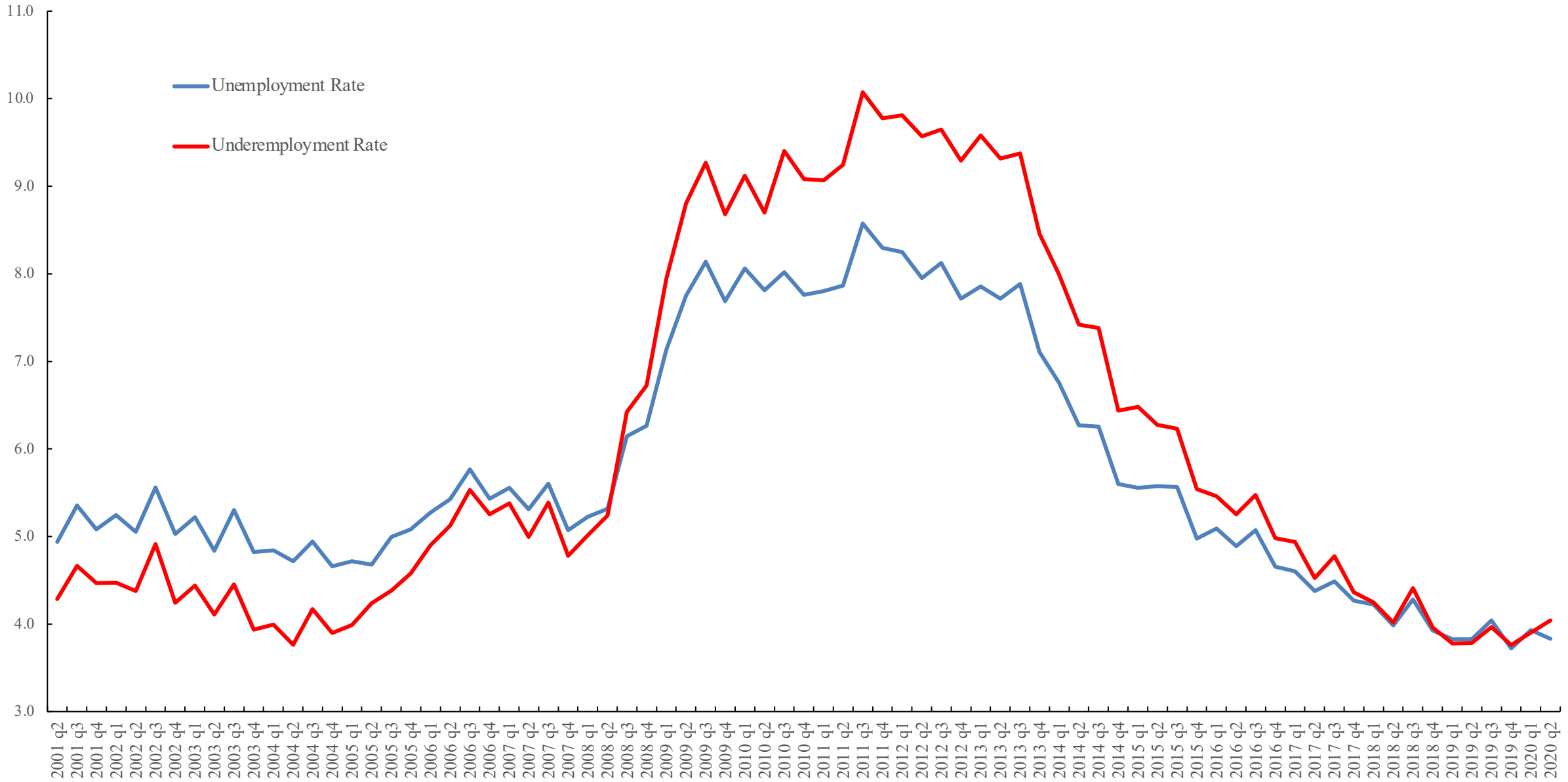
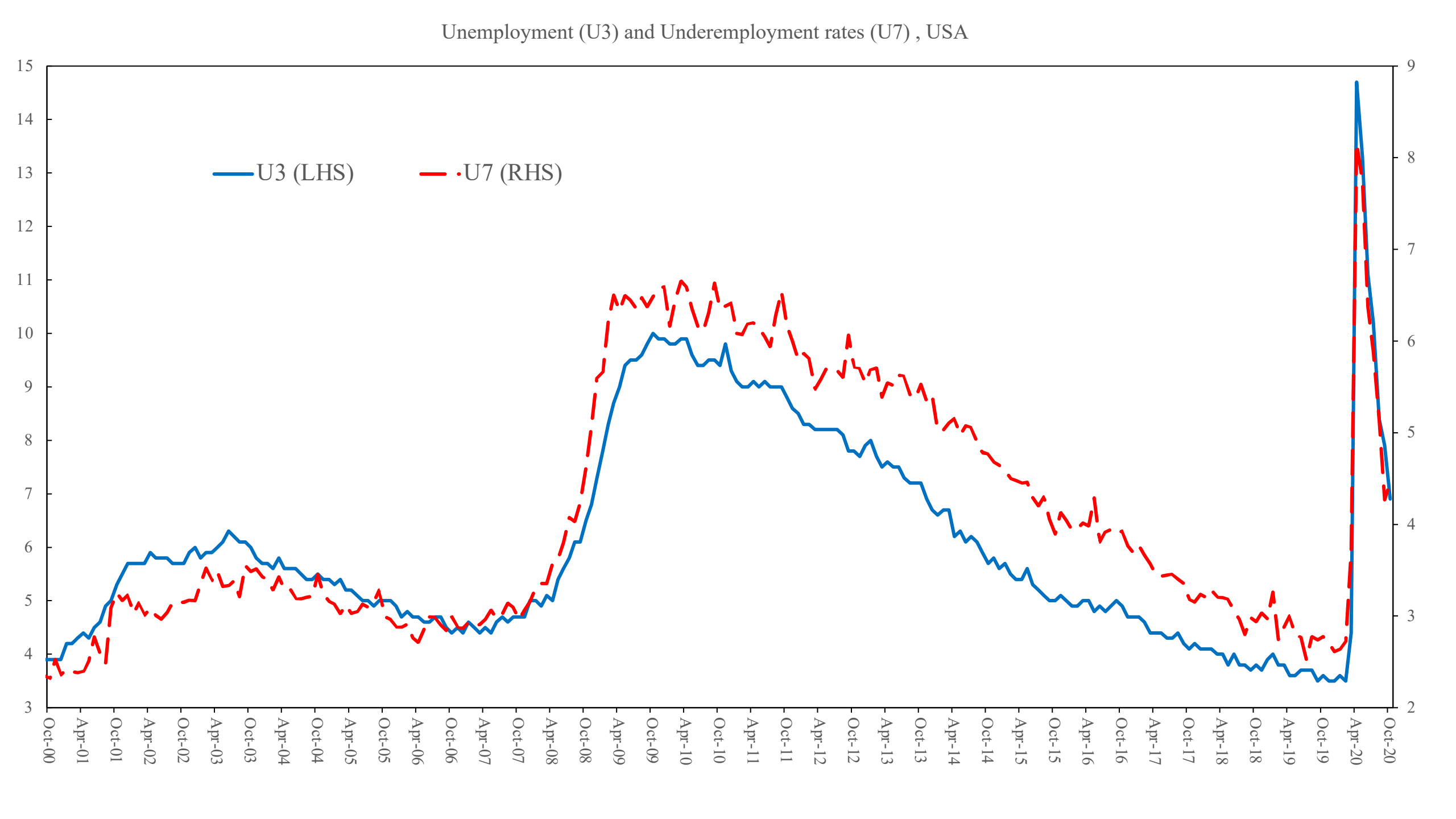
2019 q4
2020 q2
More hours
Fewer hours

Bell-Blanchflower Underemployment Rate UK, 2001q2-2020q2




Unemployment (U3) and Underemployment rates (U7) , USA
U3 (LHS)
U7 (RHS)
15
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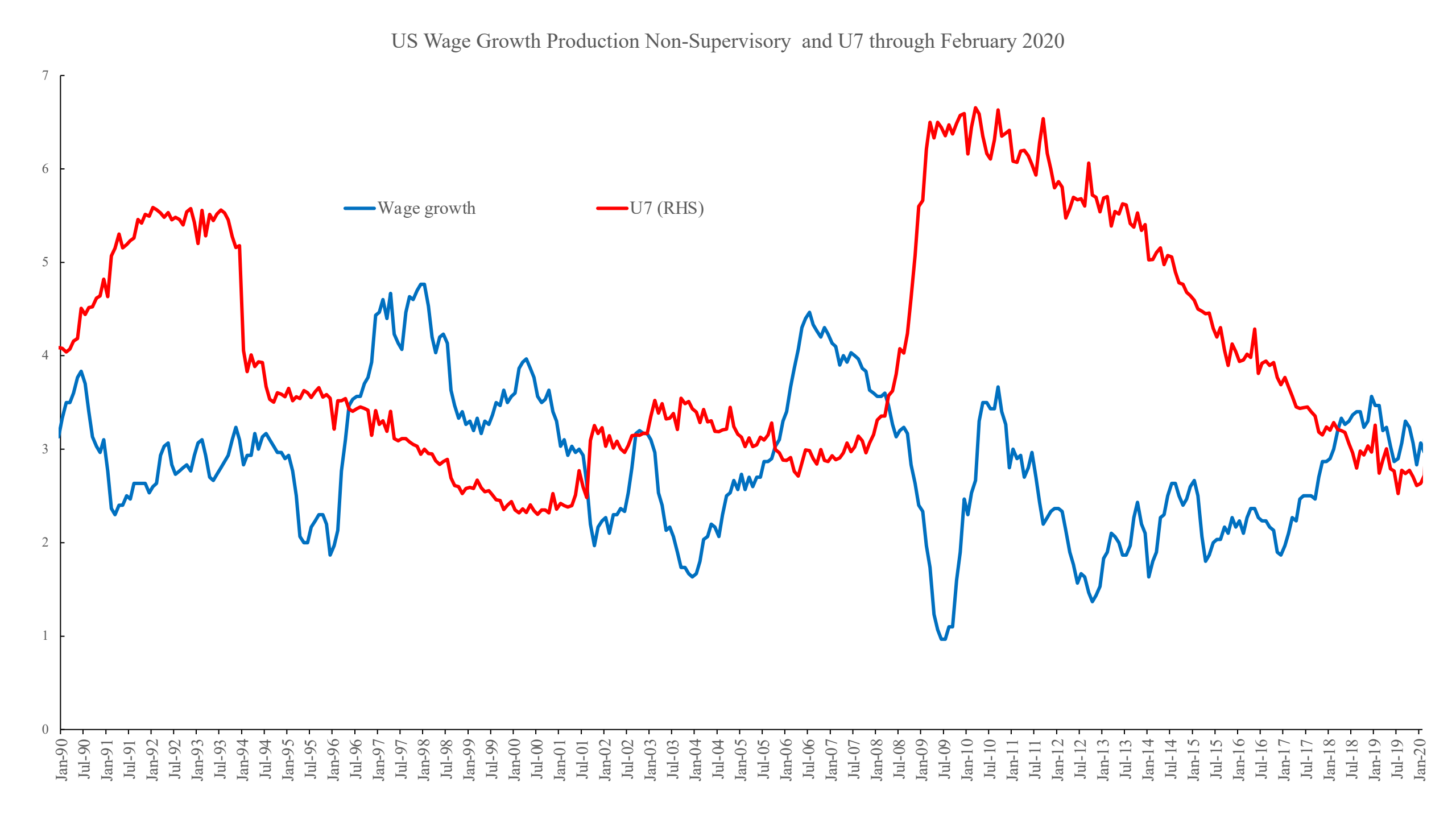
US Wage Growth Production Non-Supervisory and U7 through February 2020
Wage growth
U7 (RHS)
7
6
5
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2
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Jul-90
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Jan-93
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Table 5. Time series log wage and wage growth equations in an unbalanced country panel, 1976-2016

	1998-2016	**1998-2007**	**2008-2016**
Lagged wage	.9198 (70.9)	.9447 (24.7)	.7873 (20.2)
Log unemployment rate	-.0224 (2.3)	-.0554 (2.7)	-.0242 (1.4)
Underemployment rate	-.0025 (3.3)	-.0041 (0.8)	-.0036 (3.1)
N	275	133	142

Source: Bell and Blanchflower (2019)
Note: underemployment rate is the Bell/Blanchflower index from Table 3. T-statistics in parentheses.
Source: Hong et al (2018) and own calculations

Table 6. Time series log wage equations in a quarterly region panel, UK, 2002-2017

	Hourly pay			Weekly pay		
Log $Wage_{t-4}$	.0999 (3.43)	.0991 (3.41)	.0990 (3.41)	.0941 (3.19)	.0922 (3.14)	.0918 (3.13)
Log unemployment $rate_{t-1}$	.0092 (0.72)	.0140 (1.10)		.0089 (0.68)	.0140 (1.08)	
Log # extra hours wanted		-.0417 (3.02)	-.0398 (2.91)		-.0446 (3.18)	-.0428 (3.07)
Constant	1.8898	1.8496	1.8784	5.1576	5.1234	5.1544
Adjusted R^2	.9201	.9206	.9206	.9195	.9201	.9201
N	1260	1260	1260	1260	1260	1260

Notes: all equations include a full set of region and wave dummies

Source: Bell and Blanchflower (August 2018)

Table 7a. State level hourly wage equations with various measures of labor market slack, 1980-2017 with robust standard errors

	1980-2017	*1980-2007*	*2008-2017*	*1980-2017*	*1980-2007*	*2008-2017*
Log W_{t-1}	.6612 (21.76)	.7185 (22.75)	.0439 (1.30)	.6460 (19.84)	.7057 (22.38)	.0474 (1.35)
Log $U3_t$	-.0171 (4.51)	-.0211 (5.23)	.0068 (0.59)	.0033 (0.67)	-.0072 (1.36)	
Log PTFER				-.0253 (5.34)	-.0179 (3.84)	-.0263 (3.23)
N	1938	1428	510	1938	1428	510
R^2 within	.9964	.9962	.9216	.9965	.9963	.8727
R^2 between	.9569	.9600	.4198	.9677	.9639	.2592
R^2 overall	.9924	.9916	.5365	.9932	.9920	.4326

Notes: equations include a full set of year and state effects plus 20 personal controls - 15 education variables; age, gender and 3 race variables. U3 is the unemployment rate. U6 is the BLS broader measure of labor underutilization. PTFER is part-time for economic reasons as a percent of employment calculated from the MORG files (weighted using variable=weight). U7 is PTFER as a percent of employment from the BLS. U8 is discouraged workers as a percent of (the civilian labor force + discouraged). U9 is all marginally attached minus discouraged as a per cent of (the civilian labor force plus marginally attached minus discouraged). T-statistics in parentheses. State alternative measures of labor utilization available at https://www.bls.gov/lau/stalt_archived.htm

Log Weekly Wage Regressions using Alternative Measures U3-U7, 2003-2019 (N=850)

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	(1)	(2)	(3)	(4)	(5)
Log W_{t-1}	.4529 (15.99)	.4290 (15.28)	.4436 (15.78)	.4285 (15.25)	.4293 (15.32)
Log U3	-.0292 (4.57)	.0017 (0.21)			
Log $U7_t$		-.0421 (5.65)		-.0451 (3.93)	-.0411 (7.32)
Log $U6_t$			-.0433 (6.13)	.0058 (0.40)	

All equations include year and state dummies and personal controls.
Source CPS MORG files, BLS and Bell and Blanchflower (2020)

- U-6=Total unemployed, plus all persons marginally attached to the labor force, plus total employed part time for economic reasons (PTFER), as a percent of the civilian labor force plus all persons marginally attached to the labor force

- U7=PTFER/Employed

Log weekly wage regressions using alternative measures U6-U9 2003-2019 (n=850).

Log W_{t-1}	.4285 (15.25)	.4270 (15.11)
Log U3		.0008 (0.09)
Log $U7_t$	-.0451 (3.93)	-.0420 (5.54)
Log $U6_t$	.0058 (0.40)	
Log $U8_t$		-.0015 (0.48)
Log $U9_t$		.0038 (0.84)

U6 is the BLS broader measure of labor underutilization.
U7 is PTFER as a percent of employment.
U8 is discouraged workers as a percent of (the civilian labor force + discouraged).
U9 is all marginally attached minus discouraged as a per cent of (the civilian labor force plus marginally attached minus discouraged).

U-6=Total unemployed, plus all persons marginally attached to the labor force, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all persons marginally attached to the labor force.
State alternative measures of labor utilization available at https://www.bls.gov/lau/stalt_archived.htm

Underemployment replaces unemployment as the main measure of labor market slack in the post-recession years.