

Supplementary Appendix 1
The Cyclical Price of Labor When Wages Are
Smoothed

Marianna Kudlyak

This Version: February 13, 2009

Table 1: WAGES AND CONTEMPORANEOUS UNEMPLOYMENT RATE

	Hours worked per week ≥ 30		
	All 1	Tenure < 1 y. 2	Tenure ≥ 2 y. 3
U_t	-1.427* (0.725)	-2.716*** (0.712)	0.132 (0.683)
Grade	5.724*** (0.536)	4.299*** (0.713)	6.091*** (1.220)
Experience	0.340*** (0.037)	0.282*** (0.032)	0.389*** (0.034)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.283*** (0.248)	0.650 (4.632)	1.787*** (0.202)
Tenure ²	-0.114*** (0.015)	4.798 (3.875)	-0.068*** (0.011)
Union	19.022*** (1.080)	20.002*** (1.208)	12.804*** (1.510)
Union missing	2.369 (1.987)	3.817 (2.833)	-0.027 (1.094)
Constant	-18.692* (10.685)	4.778 (9.033)	-26.614 (17.955)
R ²	0.668	0.584	0.744
Observations	37831	12997	17633
N of ind	2586	2062	2135

Note - NLSY79, 1978 - 2004, men only, column 1 includes all observations in the sample with the sample restrictions as described in the text and hours worked per week restricted to 30 and above. Column 2 includes observations as in column 1 but restricted to the observations with tenure less than 1 year. Column 3 includes observations as in column 1 but restricted to the observations with tenure 2 years and longer. Estimated standard errors in parentheses, clustered by time. The reported coefficients and standard errors are multiplied by 100. P-values: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Dependent variable: natural logarithm of real hourly wage. All regressions are estimated with fixed effects using sampling weights. Unemployment rate is an annual unemployment rate of the calendar year the wage observation corresponds to.

Table 2: WAGES AND CONTEMPORANEOUS UNEMPLOYMENT RATE

	CPS jobs only		
	All 1	Tenure < 1 y. 2	Tenure \geq 2 y. 3
U_t	-1.236 (0.730)	-2.406*** (0.856)	-0.101 (0.645)
Grade	6.120*** (0.485)	4.969*** (0.606)	5.981*** (1.146)
Experience	0.347*** (0.040)	0.301*** (0.039)	0.364*** (0.034)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.043*** (0.273)	8.973 (5.300)	1.346*** (0.215)
Tenure ²	-0.110*** (0.018)	-0.872 (5.560)	-0.052*** (0.011)
Union	17.038*** (1.166)	20.944*** (1.414)	9.107*** (1.294)
Union missing	1.987 (1.813)	4.812 (2.892)	0.622 (1.610)
Constant	-22.976** (10.568)	-8.373 (9.637)	-17.607 (18.069)
R ²	0.685	0.617	0.751
Observations	29466	8987	15120
N of ind	2536	1956	2004

Note - NLSY79, 1978 - 2004, men only, column 1 includes all observations in the sample with the sample restrictions as described in the text and restricted to CPS jobs (as defined by NLSY). Column 2 includes observations as in column 1 but restricted to the observations with tenure less than 1 year. Column 3 includes observations as in column 1 but restricted to the observations with tenure 2 years and longer. Estimated standard errors in parentheses, clustered by time. The reported coefficients and standard errors are multiplied by 100. P-values: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Dependent variable: natural logarithm of real hourly wage. All regressions are estimated with fixed effects using sampling weights. Unemployment rate is an annual unemployment rate of the calendar year the wage observation corresponds to.

Table 3: WAGES AND CONTEMPORANEOUS UNEMPLOYMENT RATE, MONTHLY

	All sample 1	Tenure < 1 y. 2	Tenure \geq 2 y. 3
U_t	-1.487*** (0.307)	-3.108*** (0.360)	0.345 (0.400)
Grade	5.714*** (0.453)	4.039*** (0.748)	6.082*** (0.920)
Experience	0.330*** (0.017)	0.260*** (0.022)	0.377*** (0.021)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.648*** (0.156)	1.191 (5.508)	2.112*** (0.222)
Tenure ²	-0.125*** (0.009)	5.497 (5.308)	-0.077*** (0.010)
Union	19.551*** (0.797)	20.382*** (1.240)	13.278*** (1.099)
Union missing	3.254** (1.561)	5.443*** (2.080)	0.593 (1.337)
Constant	-19.958*** (6.755)	10.282 (10.010)	-30.016** (12.785)
R ²	632	0.551	0.709
Observations	40850	14576	18546
N of ind	2627	2161	2186

Note - NLSY79, 1978 - 2004, men only, column 1 includes all observations in the sample with the sample restrictions as described in the text. Column 2 includes observations as in column 1 but restricted to the observations with tenure less than 1 year. Column 3 includes observations as in column 1 but restricted to the observations with tenure 2 years and longer. Estimated standard errors in parentheses, clustered by time (323,323, 305 clusters, respectively). The reported coefficients and standard errors are multiplied by 100. P-values: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: natural logarithm of real hourly wage. All regressions are estimated with fixed effects using sampling weights. Unemployment rate is a monthly unemployment rate of the calendar month the wage observation corresponds to.

Table 4: WAGES AND CONTEMPORANEOUS UNEMPLOYMENT RATE, MONTHLY

	Hours worked per week ≥ 30		
	All 1	Tenure < 1 y. 2	Tenure ≥ 2 y. 3
U_t	-1.384*** (0.303)	-2.730*** (0.391)	0.222 (0.368)
Grade	5.733*** (0.477)	4.327*** (0.760)	6.106*** (0.821)
Experience	0.341*** (0.016)	0.284*** (0.023)	0.391*** (0.020)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.290*** (0.144)	0.171 (5.774)	1.786*** (0.202)
Tenure ²	-0.115*** (0.008)	5.260 (5.497)	-0.068*** (0.009)
Union	19.013*** (0.785)	19.959*** (1.244)	12.805*** (1.071)
Union missing	2.327* (1.332)	3.704** (1.694)	-0.046 (1.045)
Constant	-19.202*** (7.158)	4.470 (10.125)	-27.591** (11.416)
R ²	0.668	0.584	0.745
Observations	37831	12997	17633
N of ind	2568	2062	2135

Note - NLSY79, 1978 - 2004, men only, column 1 includes all observations in the sample with the sample restrictions as described in the text and hours worked per week restricted to 30 and above. Column 2 includes observations as in column 1 but restricted to the observations with tenure less than 1 year. Column 3 includes observations as in column 1 but restricted to the observations with tenure 2 years and longer. Estimated standard errors in parentheses, clustered by time (323, 323, 305 clusters, respectively). The reported coefficients and standard errors are multiplied by 100. P-values: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Dependent variable: natural logarithm of real hourly wage. All regressions are estimated with fixed effects using sampling weights. Unemployment rate is a monthly unemployment rate of the calendar month the wage observation corresponds to.

Table 5: WAGES AND CONTEMPORANEOUS UNEMPLOYMENT RATE, MONTHLY

	CPS jobs only		
	All 1	Tenure < 1 y. 2	Tenure \geq 2 y. 3
U_t	-1.375*** (0.318)	-2.644*** (0.468)	-0.101 (0.336)
Grade	6.107*** (0.494)	4.976*** (0.841)	5.980*** (0.950)
Experience	0.345*** (0.021)	0.300*** (0.030)	0.364*** (0.022)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.052*** (0.171)	8.574 (6.522)	1.347*** (0.233)
Tenure ²	-0.110*** (0.010)	-0.508 (6.499)	-0.052*** (0.011)
Union	17.009*** (0.932)	20.859*** (1.484)	9.106*** (1.058)
Union missing	1.951 (1.709)	4.639* (2.619)	0.619 (1.323)
Constant	-21.674*** (7.688)	-6.542 (11.745)	-17.586 (13.359)
R ²	0.686	0.617	0.751
Observations	29466	8987	15120
N of ind	2536	1956	2004

Note - NLSY79, 1978 - 2004, men only, column 1 includes all observations in the sample with the sample restrictions as described in the text and restricted to CPS jobs (as defined by NLSY). Column 2 includes observations as in column 1 but restricted to the observations with tenure less than 1 year. Column 3 includes observations as in column 1 but restricted to the observations with tenure 2 years and longer. Estimated standard errors in parentheses, clustered by time (299, 276, 258 clusters, respectively). The reported coefficients and standard errors are multiplied by 100. P-values: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: natural logarithm of real hourly wage. All regressions are estimated with fixed effects using sampling weights. Unemployment rate is a monthly unemployment rate of the calendar month the wage observation corresponds to.

Table 6: WAGES AND INITIAL, MINIMUM AND CONTEMPORANEOUS UNEMPLOYMENT RATE, CPS JOBS ONLY

	Coefficient	Robust S.E.	S.E. clustered by t	S.E. clustered by $t_0 \cdot t$	S.E. clustered by t_0 & t
	1	2	3	4	5
U_t	0.776	(0.257)***	(0.702)	(0.358)***	(0.689)
U_{t_0}	-0.921	(0.329)***	(0.431)**	(0.410)**	(0.565)*
$\min U$	-4.008	(0.496)***	(0.859)***	(0.663)***	(1.151)***
Grade	5.488	(0.613)***	(0.666)***	(0.569)***	(0.742)***
Experience	4.088	(0.163)***	(0.366)***	(0.239)***	(0.428)***
Experience ²	-0.091	(0.005)***	(0.013)***	(0.007)***	(0.014)***
Tenure	2.295	(0.177)***	(0.267)***	(0.237)***	(0.379)***
Tenure ²	-0.077	(0.008)***	(0.014)***	(0.010)***	(0.016)***
Union	15.987	(0.807)***	(1.061)***	(0.832)***	(1.119)***
Union missing	1.892	(1.154)	(1.219)	(1.173)	(1.105)
Constant	7.126	(8.484)	(12.946)	(9.103)	(14.011)
R ²	0.7071	0.7071	0.7071	0.7071	-
Observations	27350	27350	27350	27350	27350

Note - NLSY79, 1978 - 2004, men only, includes only CPS jobs; hours worked per week restricted to 35 and above. Dependent variable: natural logarithm of real hourly wage. All regressions are estimated with fixed effects using sampling weights. Column 1 contains coefficient estimates. Columns 2 - 5 contain estimated standard errors (in parentheses) from the alternative estimations. The reported coefficients and standard errors are multiplied by 100. P-values of the coefficients associated with standard errors: *** p<0.01, ** p<0.05, * p<0.1. Unemployment coefficients are the corresponding annual unemployment rates.

Table 7: WAGES AND MONTHLY INITIAL, MIN, MAX AND CONTEMPORANEOUS UNEMPLOYMENT RATE

	All sample 1	$t = t_0$ excluded 2	$t = t_0$ excluded 3
U_t	0.958** (0.421)	0.817* (0.426)	0.699* (0.383)
U_{t_0}	-0.986*** (0.334)	-1.212*** (0.335)	-1.300*** (0.315)
min U	-3.317*** (0.588)	-3.642*** (0.603)	-3.879*** (0.588)
max U	-0.694* (0.381)	-0.370 (0.386)	x
Grade	5.181*** (0.462)	5.008*** (0.533)	5.017*** (0.534)
Experience	0.313*** (0.015)	0.334*** (0.017)	0.335*** (0.017)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.381*** (0.254)	2.942*** (0.252)	2.766*** (0.195)
Tenure ²	-0.102*** (0.010)	-0.091*** (0.010)	-0.086*** (0.010)
Union	19.121*** (0.769)	17.691*** (0.810)	17.695*** (0.812)
Union missing	4.039*** (1.448)	3.141** (1.398)	3.181** (1.402)
Constant	5.398 (7.162)	11.027 (8.410)	11.129 (8.407)
R ²	0.635	0.635	0.635
Observations	40850	32735	32735

Note - NLSY79, 1978 - 2004, men only, includes all observation in the sample as described in the text. Dependent variable: natural logarithm of real hourly wage. Estimated standard errors in parentheses. The reported coefficients and standard errors are multiplied by 100. P-values: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Standard errors are clustered by a contemporaneous month. Column 1 includes all observations. Columns 2 and 3 exclude observations for which contemporaneous calendar year equals start year. Unemployment measures are monthly unemployment rates.

Table 8: WAGES AND INITIAL, MIN, AND CONTEMPORANEOUS UNEMPLOYMENT RATE, 1978 - 2002

	Industry dummies incl.	Industry dummies not incl.
	1	2
U_t	-0.035 (0.954)	-0.085 (0.992)
U_{t_0}	-1.445*** (0.368)	-1.485*** (0.395)
$\min U$	-2.821*** (0.998)	-2.987*** (1.022)
Grade	4.791*** (0.464)	4.750*** (0.463)
Experience	0.318*** (0.026)	0.343*** (0.028)
Experience ²	-0.001*** (0.000)	-0.001*** (0.000)
Tenure	3.464*** (0.360)	3.411*** (0.336)
Tenure ²	-0.112*** (0.021)	-0.113*** (0.020)
Union	16.623*** (0.734)	18.872*** (0.956)
Union missing	3.151** (1.418)	3.375** (1.384)
Constant	18.036* (10.508)	13.475 (10.579)
R ²	0.641	0.626
Observations	39132	39132
N of ind.	2623	2623

Note - NLSY79, 1978 - 2002, men only, includes all observation in the sample as described in the text. Dependent variable: natural logarithm of real hourly wage. Standard errors in parentheses. The reported coefficients and standard errors are multiplied by 100. P-values: *** p<0.01, ** p<0.05, * p<0.1. Standard errors are clustered by a contemporaneous year.