Do Extended Unemployment Benefits Lengthen Unemployment Spells?

Evidence from Recent Cycles in the U.S. Labor Market

Henry S. Farber and Robert G. Valletta

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Federico Curci

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Introduction

Research question

- What is and how much is the effect of Unemployment Insurance (UI) benefits extension on unemployment spells?
- Consider the effect of extended UI in 2001 and Great Recession
- Distinguish the effect of UI on exiting unemployment through job finding or existing the labour force

Great Recession

- Extension in UI availability and increase in UI claims

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Not reliance on past empirical estimate to do simulation of effect of extended UI during recent crisis

- Temporary layoff
- Severity recent labour market downturn

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Recent works

- Not control for effect of labour market conditions and individual characteristics related to UI eligibility
- Similar to Rothstein (2011) but including also effect on 2001 crisis

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  - individual variation in benefit availability
  - within-state variation over time and cross-state variation at a point in time
  - conditional on state economic conditions and individual characteristics

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  - individual variation in benefit availability
  - within-state variation over time and cross-state variation at a point in time
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- Use microdata at individual level from CPS survey from 2000 to 2005 and from 2007 to 2012

Federal-state Unemployment Compensation (UC) programme

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- Eligibility requirements
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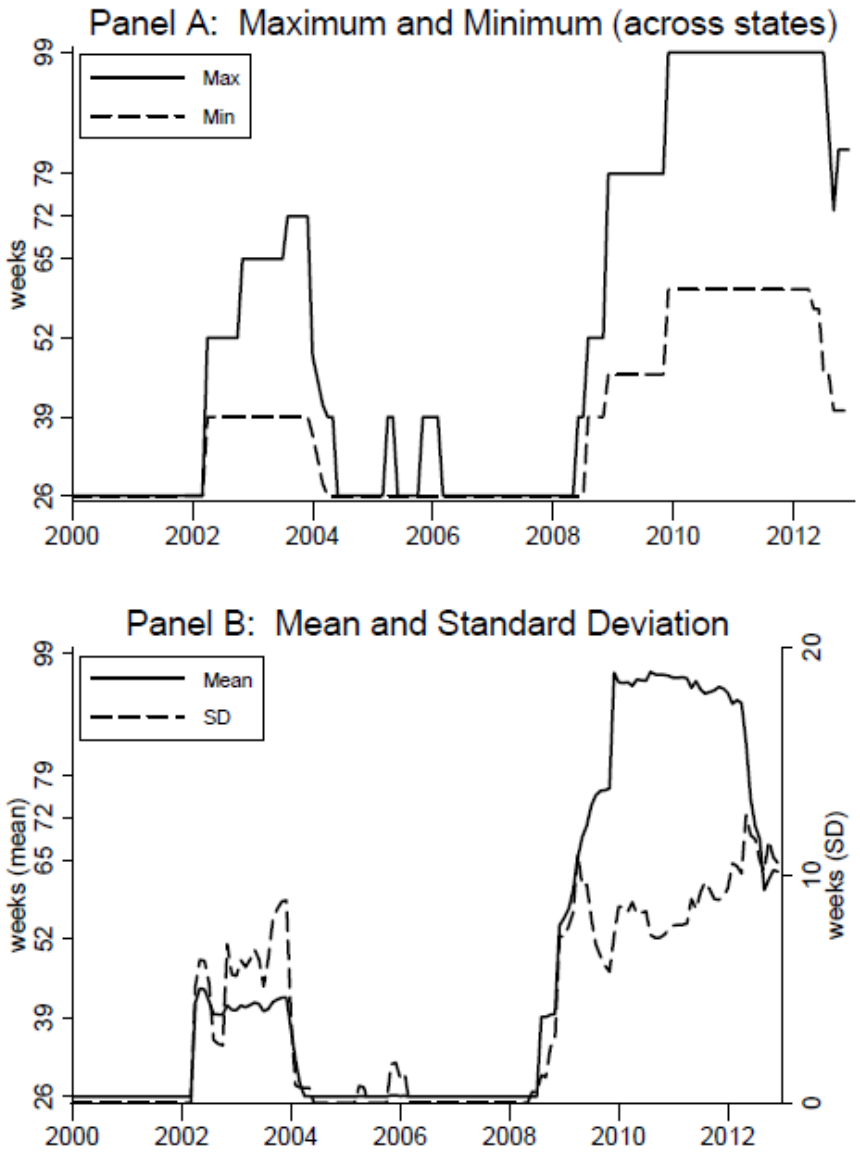
Supplements with permanent and temporary legislation

- Federal Extended Benefits (EB) programme
  - Permanent programme since 1970
  - Additional 20 weeks depending on state unemployment
- Temporary programmes
  - Expansion availability benefits from 2002 to 2004 and from 2008 to 2009
  - Timing of UI extension and maximum duration gradually varies across state and time
  - Maximum of 99 weeks

Introduction

UI programmes



- Monthly survey
- Rotation group structure
  - Visit the same individual for 4 months, then not interview for 8 months, and then revisit him for 4 month (if residence not changed)
  - Possible match individuals
- Ask labour force status, how long they have been unemployed, reason of unemployment

Length-biased sampling

- Only unemployment spells lasting long enough to make it to the survey date are measured
- Over-representation longer spells

Empirical strategy

Econometric problems

Length-biased sampling

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- Over-representation longer spells

Censoring exit from unemployment

- Unemployment spells that would end up in exiting from labour force or to employment are censored at duration of other event
- If an unemployment spell not end within the observation period

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Appropriately account for conditional probabilities of remaining unemployed and not cross-section observations

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Omitted variable bias

- Control for state economic conditions and individual characteristics

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Reporting errors in transitions in labour force status

- Individuals report unemployment duration since the loss of a salient job (not necessarily last job)

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Definition UI eligible

- Consider as UI eligible: unemployed individual who lost a job (necessary but not sufficient)
- Upward bias: correlation between state economic conditions and availability of extended benefits
- Downward bias: spillover effects on job search and job finding from eligible to ineligible individuals
- Placebo test

Discrete choice hazard model

- Unobserved latent variable: positive if an unemployment spell ends in a given month

  $y_{it} = X_{it}\beta + \delta_1 EB_{it} + \delta_2 Last_{it} + \varepsilon_{it}$

- Hazard of a spell ending

  $h(t) = P(Y_{it} > 0) = \Phi(X_{it}\beta + \delta_1 EB_{it} + \delta_2 Last_{it})$

Empirical strategy

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Competing risk model: generalization distinguishing exit from unemployment to employment or outside the labour force

Empirical strategy

Econometric framework

Likelihood function derived from appropriate conditional probabilities

- Unconditional probability that an unemployment spell ends at duration S
  $P(D = S) = h(S) \prod_{t=1}^{S-1} (1 - h(t))$
- Unconditional probability that a spell of unemployment has duration at least S (survivor function)
  $G(S) = P(D \geq S) = \prod_{t=1}^{S} (1 - h(t))$

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- Conditional probability that an unemployment spell ends at duration S, conditional on having reached a duration S_0
  $P(D = S|D \geq S_0) = \frac{h(S)\prod_{t=1}^{S-1}(1-h(t))}{\prod_{t=1}^{S_0-1}(1-h(t))} = h(S)\prod_{t=S_0}^{S-1}(1 - h(t))$
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Results

Reported facts

- Almost half of the unemployment spells are somehow censored
- Computations of unemployment duration from CPS similar to those provided by BLS
- Great recession impact on labour market

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- Computations of unemployment duration from CPS similar to those provided by BLS
- Great recession impact on labour market
- Survivor rates not consistent with cross-section distributions of durations of incomplete spells from CPS
  - 2009-2011, survival rate at 6 months is 13.7, while 39.8 percent of spells in cross-sections were at least 6 months

Results

Estimation effect UI

Table 4: Estimated Average Marginal Effects on Probability of Exit from Unemployment

UI Eligible Sample

	2000-2005m2		2007-2012m10	
Model	$\hat{\delta}_1^*$	$\hat{\delta}_2^*$	$\hat{\delta}_1^*$	$\hat{\delta}_2^*$
Single Risk	-0.0583	0.0538	-0.0500	0.0220
	(0.0138)	(0.0156)	(0.0064)	(0.0199)
Exit to Emp	-0.0212	0.0263	-0.0099	0.0208
	(0.0121)	(0.0150)	(0.0065)	(0.0129)
Exit to NILF	-0.0372	0.0287	-0.0340	0.0040
	(0.0106)	(0.0098)	(0.0033)	(0.0109)

Small negative and significant effect of UI extended benefits

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Results similar across recessions

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Unemployment exit is driven by people not leaving the labour force

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Not significant reduction in search effort or increase reservation wage

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Effect of exhaustion of benefits present only in 2001 recession

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Positive total effect driven by exit outside labour force

Results

Quantify effect extended benefits

- Once δ_1 and δ_2 have been estimated it is possible to compute the expected duration of unemployment spells under three alternative scenarios
  - Observed-EB
  - No-EB: no extended benefits in any state at any time
  - Full-EB: 99 weeks of extended benefits in all states and months
- For each scenario and spell predict the monthly hazard of exit, the estimated survivor function and the expected duration of each spell Formula

Results

Quantify effect extended benefits

Time-to-quantile comparison

- Inverse of CDF of unemployment duration shows number of months required to reach a given quantile of the duration distribution

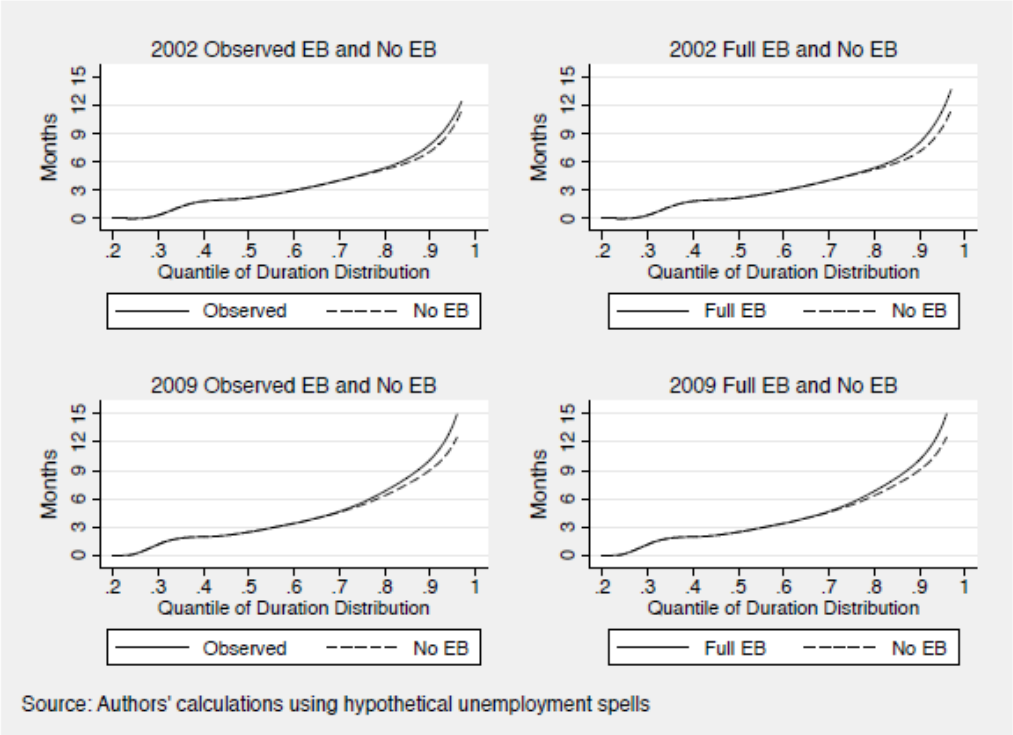

Figure 6: Comparisons of Time-to-Quantile: Observed-EB, No-EB, and Full-EB Scenarios.

Results

Quantify effect extended benefits

- Effect of extended benefits program on unemployment duration only for a small fraction of unemployment spells
  - No difference in time-to-quantile for quantiles below 0.65
  - Larger difference at higher quantiles

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  Table
- Difference in observed and No-EB time to exit unemployment to go outside the labour force is 0.43 and 1 month for 2002-2004 and 2009-2011 periods

Results

Quantify effect extended benefits

- Extended benefits account for 0.14 percentage points of 5.4 unemployment rate in 2003 and for 0.4 percentage points of the 9 percent unemployment rate in 2010

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Quantify effect extended benefits

- Extended benefits account for 0.14 percentage points of 5.4 unemployment rate in 2003 and for 0.4 percentage points of the 9 percent unemployment rate in 2010
- Substantial fraction (15-25 percent) of long-term unemployment observed in the cross-section is due to the availability of extended UI benefits Figure

Conclusions

- Small but significant reduction in unemployment exits and small increase in unemployment duration due to UI extensions
- Exit from unemployment primarily due to reduction in labour force exits rather than through exit to employment
  - No effect on job-finding rate and job-search effort
  - Redistributive effect: provide income to job losers who would exited the labour force otherwise
- Substantial effect of extended benefits on the long-term unemployed share
- Small impact on the aggregate labour market
- Upward and downward bias due to mis-classification might offset each other in 2009-2012 Table

Expected duration difference

Table 6: Estimated Effect of Extended Benefits on Expected Duration (in Months)
UI Eligible Spells

Panel 1: March 2002 – June 2004

Scenario	Single Risk	Exit to Emp	Exit to NILF
Observed-EB	3.56	5.55	9.05
No-EB	3.42	5.41	8.61
Full-EB	3.65	5.65	9.59
Observed-EB - No-EB	0.14	0.14	0.43
(Obs EB - No-EB)/No-EB	0.04	0.03	0.05
Full-EB - No-EB	0.23	0.24	1.02
(Full-EB - No-EB)/No-EB	0.07	0.04	0.12

Panel 2: January 2009 – April 2011

Scenario	Single Risk	Exit to Emp	Exit to NILF
Observed-EB	4.89	7.85	10.29
No-EB	4.55	7.62	9.32
Full-EB	4.89	7.85	10.24
Observed-EB - No-EB	0.34	0.23	0.97
(Obs EB - No-EB)/No-EB	0.07	0.03	0.10
Full-EB - No-EB	0.34	0.23	0.92
(Full-EB - No-EB)/No-EB	0.07	0.03	0.10

Back to Quantify.

Expected duration of each spell

$$E(D_i) = \left[\sum_{s=1}^{28} s\hat{h}_i(s)\hat{G}_i(s-1)\right] + \hat{G}_i(28)\frac{1}{\bar{h}_i}$$

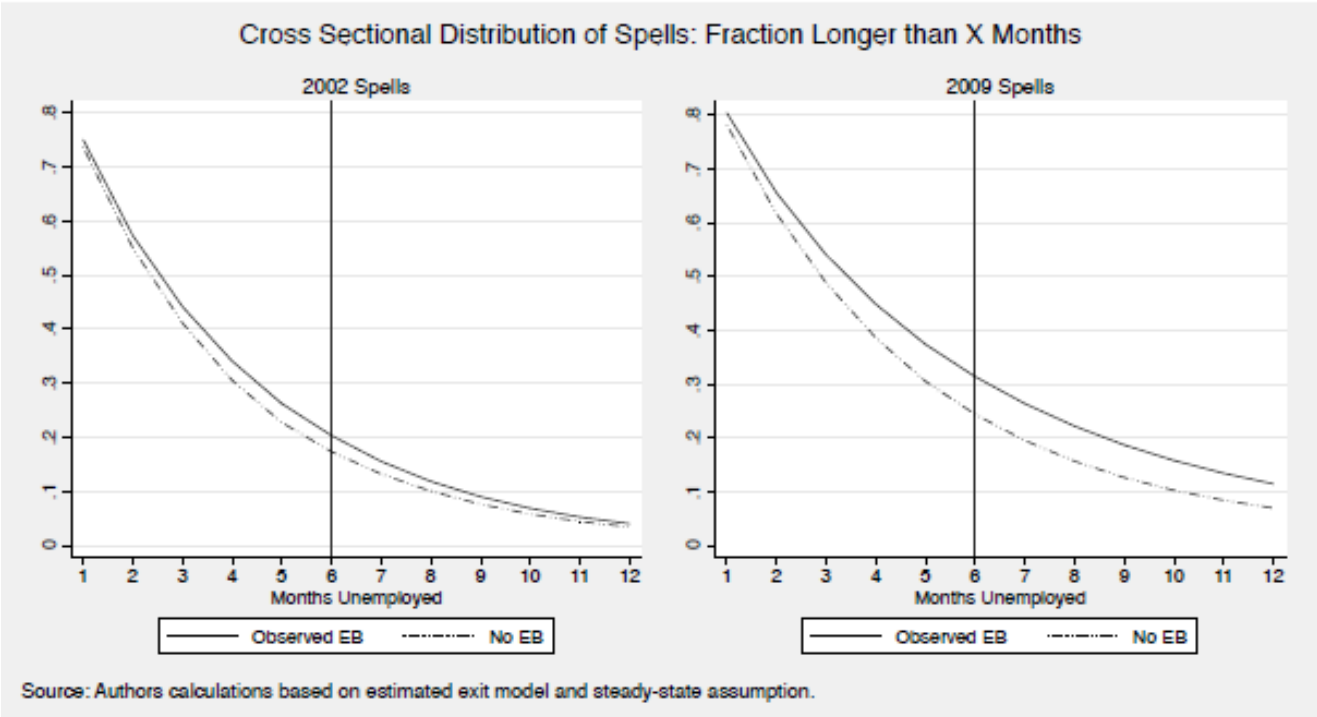
$$\hat{G_i}(t) = \prod_{s=1}^{t}(1-\hat{h}_i(s))$$

Assumption: constant hazard after month 28 at average value from 24 to 28 month

Back to Quantify.

Effect of extended benefits on the cross-sectional distribution of duration of spells in progress

- Calculate cross-sectional distributions with the steady-state assumption of constant monthly inflow into unemployment
- Idea: estimated survivor probability at time s is estimate of probability in a cross-section that a spell that started s periods earlier is still in progress Back to Quantify.



Placebo test

Table 5: Estimated Average Marginal Effects on Probability of Exit from Unemployment

UI Ineligible (Placebo) Sample

	2000-2005m2		2007-2012m10	
Model	$\hat{\delta}_1^*$	$\hat{\delta}_2^*$	$\hat{\delta}_1^*$	$\hat{\delta}_2^*$
Single Risk	-0.0053	0.0138	-0.0320	-0.0065
	(0.0195)	(0.0252)	(0.0098)	(0.0330)
Exit to Emp	0.0034	-0.0080	0.0152	-0.0181
	(0.0184)	(0.0208)	(0.0084)	(0.0184)
Exit to NILF	-0.0094	0.0251	-0.0466	0.0123
	(0.0189)	(0.0206)	(0.0101)	(0.0243)

Back to Conclusions.