Discussion of "The Limited Macroeconomic Effects of Unemployment Benefit Extensions" by Gabriel Chodorow-Reich and Loukas Karabarbounis

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July 16, 2016

Introduction

- UI benefit extension is one of the most prominent and actively used countercyclical stabilization policies.
- Policy evaluation depends on its impact on the aggregate labor market variables, e.g. (un)employment, labor force, job vacancies.
- Problem: Until very recently empirical literature has not tried to assess the total effects of this policy.

Key Institutional Features

- States provide 26 weeks of regular benefits to unemployed regardless of economic conditions.
- When a 3-month moving average of state unemployment rate crosses a predetermined threshold, federal extensions (e.g., 13 extra weeks) get triggered on.
- In recession, additional triggers are often introduced at one or two discrete higher unemployment levels.
- This creates "extension tiers" depending on which level of unemployment has been crossed (e.g., 6% or 8%).
- When state unemployment falls below the threshold, the corresponding extension tier is triggered off.
- An unemployed individual may receive extended benefits under a given tier only if
  1. the tier is currently triggered on, and
  2. she exhausted regular state benefits and all earlier tiers.

The Role of Expectations

- Key effect in eq-m search model is the effect on job creation.
- As any investment decision, it depends on the expectation of future profitability, affected by future policies.
- E.g.: Only regular 26 weeks of benefits currently available.
  - If workers and firms expect that benefits extensions will be triggered 6 month from now, it improves workers expected value of becoming unemployed today.
  - Resulting upward pressure on the wage of *all current employees and all new hires* discourages job creation today.
  - In contrast, introducing an extension today that will be reversed, say, 3 month from now, has no important effect on job creation.
  - Direct evidence for these effects in the data: Hagedorn, Karahan, Manovskii and Mitman (2013).

Two Main Challenges to the Empirical Measurement of the Total Effects of UI Extensions in Recessions

Challenge 1: Expectations.

- As all investment decisions, firms' job creation decisions depend on expectations of future policies (like UI benefit generosity) as well as future productivity and demand.
- Surprisingly, this channel has hardly attracted any attention in the empirical literature.

Challenge 2: Endogeneity

- UI benefit duration responds to past changes in unemployment rate at the state level.

Approaches in the Literature

Approach A: Semi-Structural Approach:

- Hagedorn, Karahan, Manovskii and Mitman (2013) "Unemployment Benefits and Unemployment in the Great Recession: The Role of Macro Effects"

Approach B: Quasi-Experimental Approaches

1. Unexpected Permanent Cuts in Benefits
   - Johnston and Mas (2015) "Potential Unemployment Insurance Duration and Labor Supply: The Individual and Market-Level Response to a Benefit Cut"
   - Hagedorn, Manovskii and Mitman (2014) "The Impact of Unemployment Benefit Extensions on Employment: The 2014 Employment Miracle?"
2. Methodology based on mistakes
   - Coglianese (2015) "Do Unemployment Insurance Extensions Reduce Employment"
   - Chodorow-Reich and Karabarbounis (2016) "The Limited Macroeconomic Effects of Unemployment Benefit Extensions"

Idea of Chodorow-Reich and Karabarbounis

- $u_{s,t}$: real time unemployment rate in state s at time t.
- $T_{s,t}$: Actual duration of benefits $T_{s,t}$ based on $u_{s,t}$.
- $\tilde{u}_{s,t}$: Revised unemployment rate in state s at time t.
- $\tilde{T}_{s,t}$: Hypothetical duration of benefits based on $\tilde{u}_{s,t}$.
- Idea: $u_{s,t}$ and $\tilde{u}_{s,t}$ differ by measurement error and so do benefits:

$$\hat{T}_{s,t} = T_{s,t} - \tilde{T}_{s,t}.$$

- Allows to use error $\hat{T}_{s,t}$ as exogenous variation in benefits:

$$\tilde{u}_{s,t} = \beta \hat{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}.$$

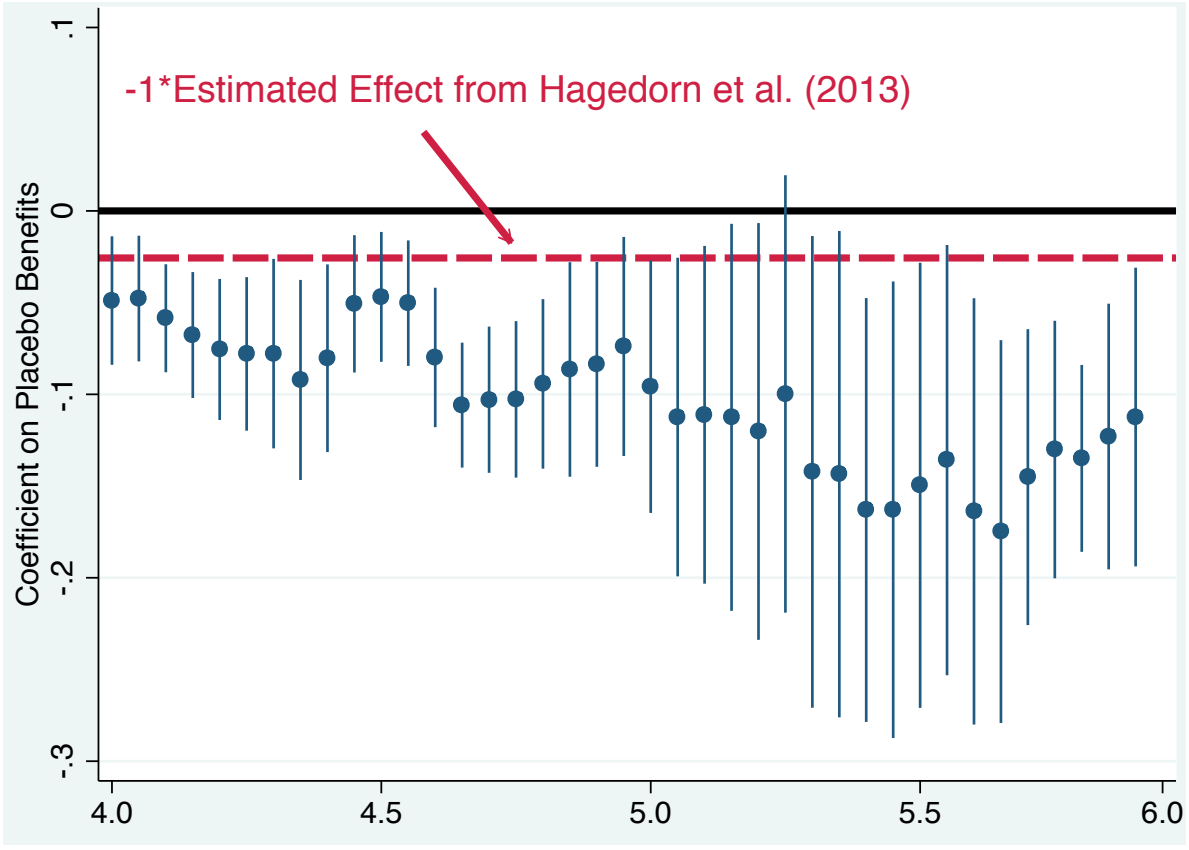
- Find basically no effect of benefit extensions.

Interpretation

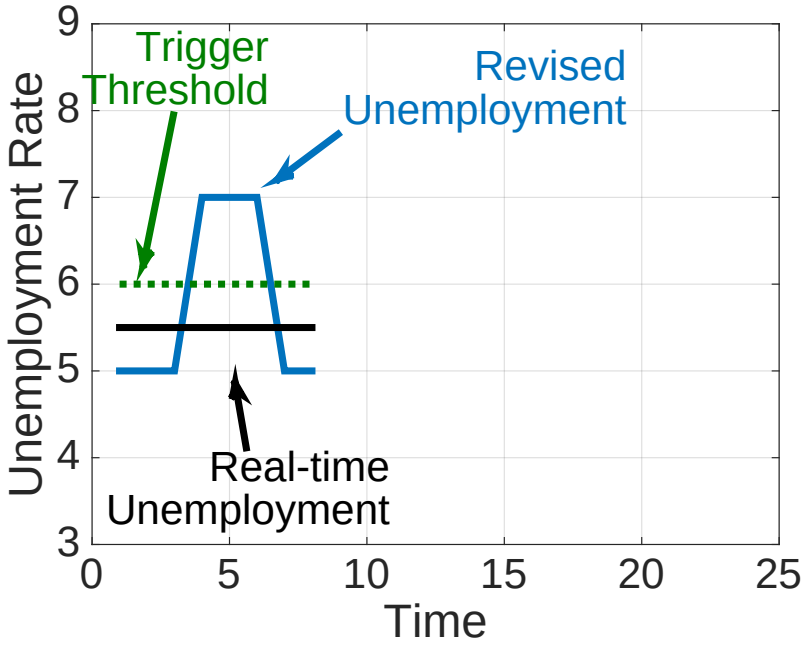
- Errors in $\hat{T}_{s,t}$ in the data last for ≈ 1 quarter.
- By the time current employees or new hires reach eligibility for such extensions, the errors would be long ago corrected.
- The standard search model would imply a nearly zero effect of such extensions on job creation.
- The estimates in CRK are fully consistent with that.
  - By design, the empirical approach in CRK is not useful for inferring the effects of UI extensions on job creation implied by the search model.
  - It is perhaps more useful for inferring the effects of higher current transfers on aggregate demand. The finding of a zero effect is unexpected in light of the literature.
- However, the interpretation relies on
  - The estimate being empirically sound...
  - The correct model should be properly used to interpret it...

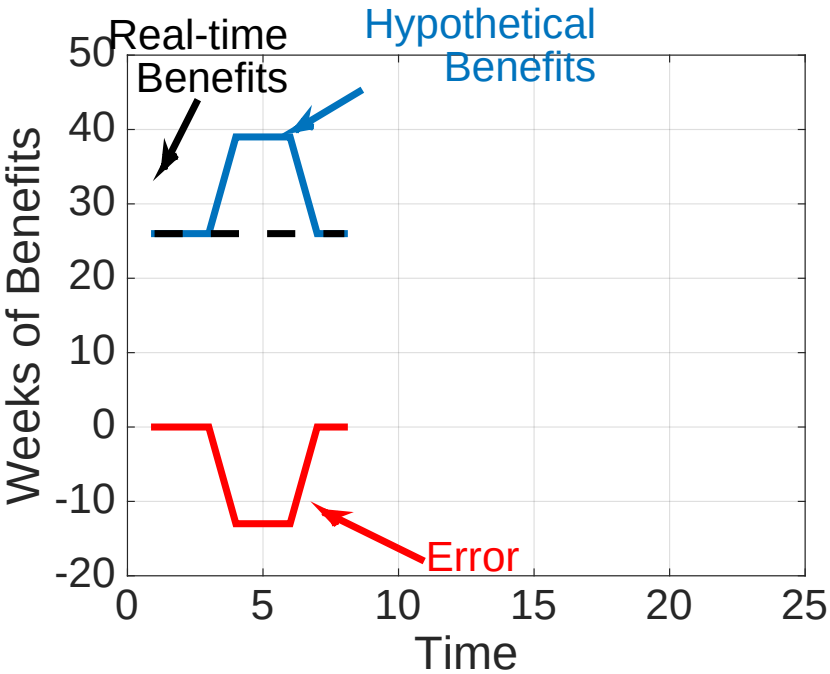
A Placebo Experiment

- Data from 1996-2000. No benefit extensions.
- Placebo trigger thresholds ranging from 4% to 6% to construct $T, \tilde{T}$ and error $\hat{T}$.
- Extension 1.75 months (to match average error in data).
- Regression: Revised $\tilde{u}$ on $\hat{T}$.



Source of Bias in $\tilde{u}_{s,t} = \beta \hat{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}$





A simple example:

- 6% threshold: UI 26 → 39 weeks.
- Four cases:

Real u_t	Rev $\tilde{u}_t$	Real T_t	Rev $\tilde{T}_t$	Error $\hat{T}_t$
$< 6\%$	$< \mathbf{6\%}$	26,	26,	**0.**
$> 6\%$,	$< \mathbf{6\%}$	39,	26,	**13.**
$< 6\%$,	$> \mathbf{6\%}$	26,	39,	**−13.**
$> 6\%$,	$> \mathbf{6\%}$	39,	39,	**0.**

- Shock ϵ induces negative co-movement of $\hat{T}$ and $\tilde{u}$.

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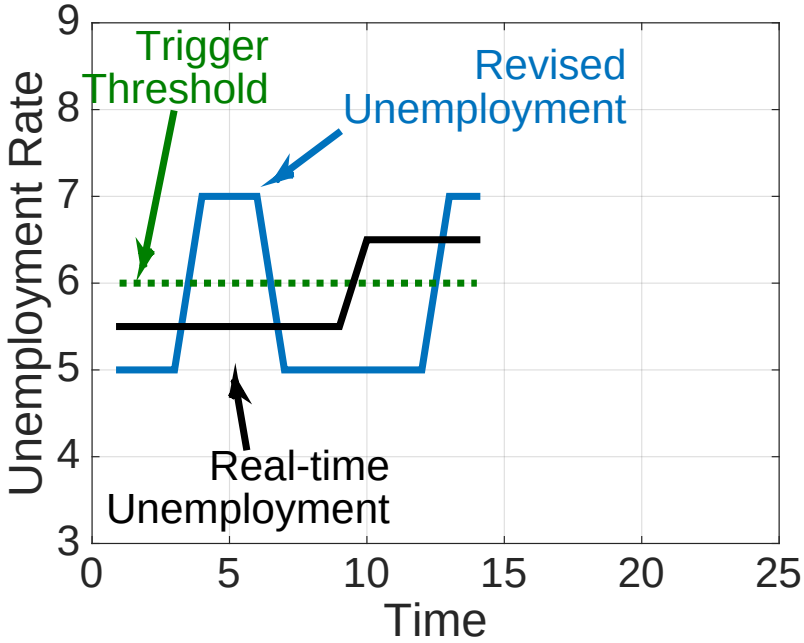

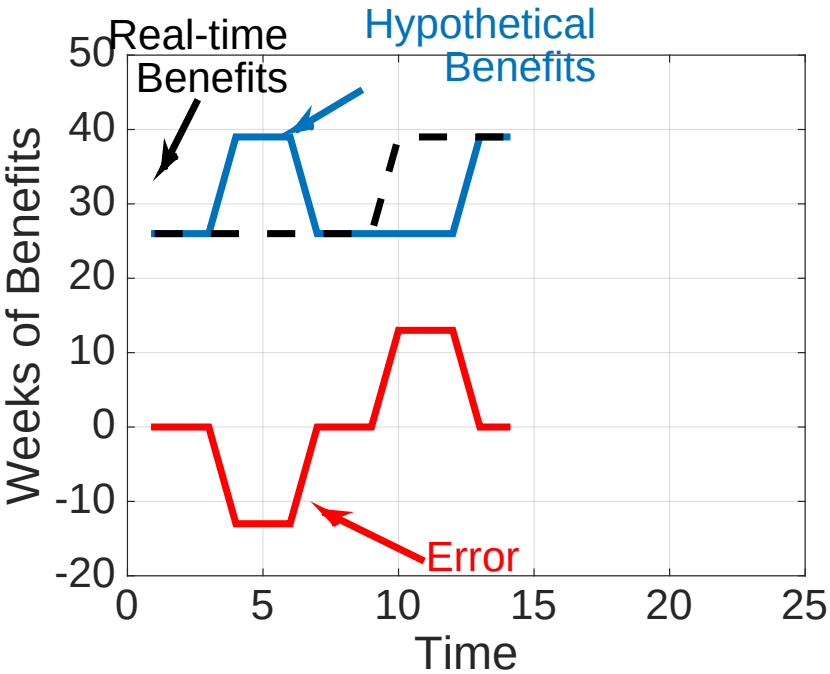

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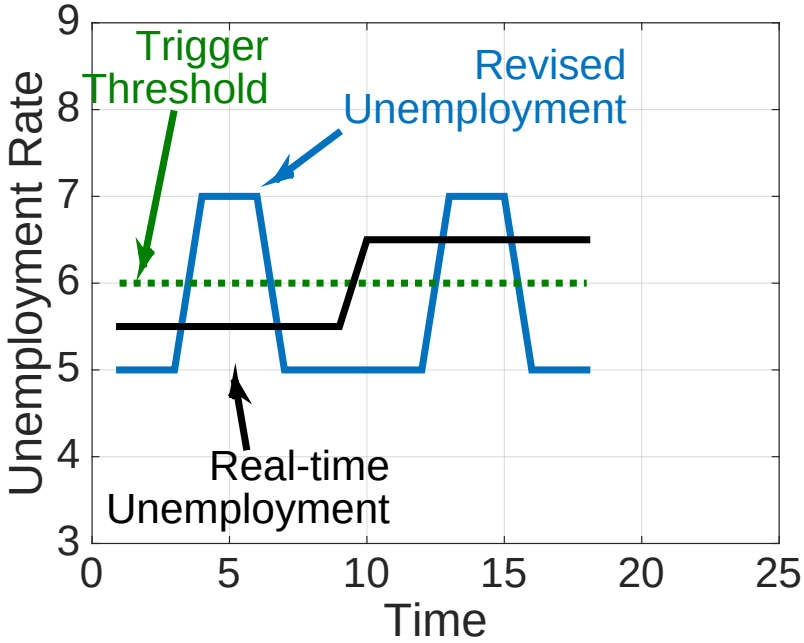

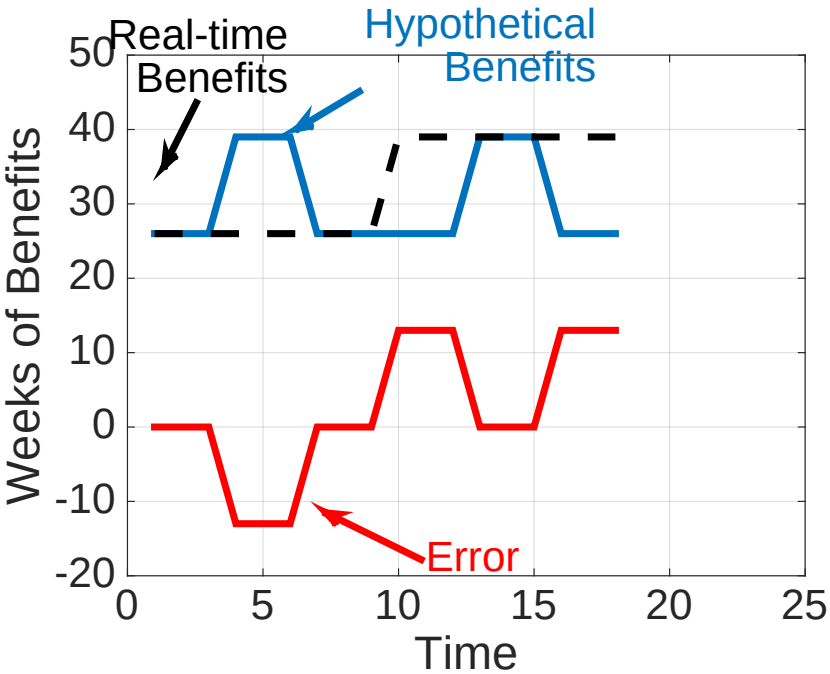

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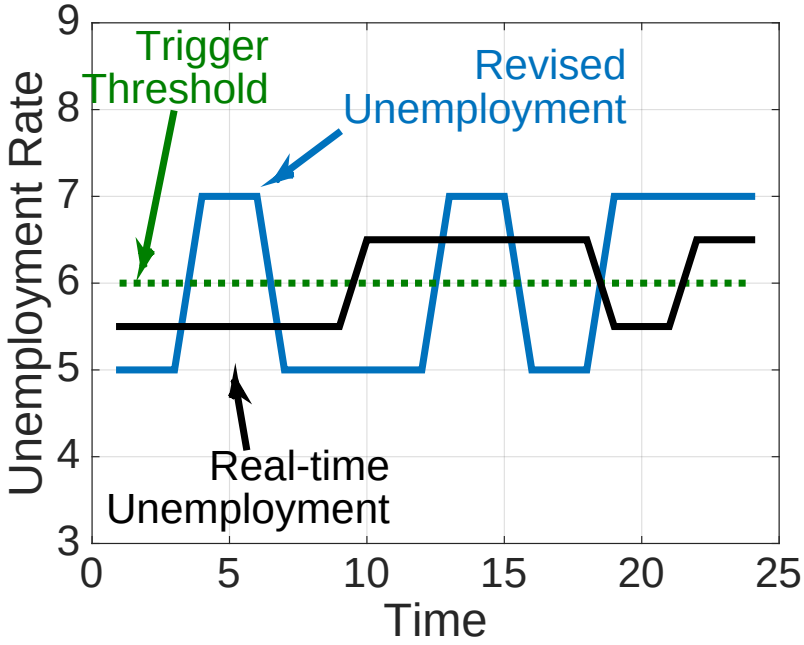

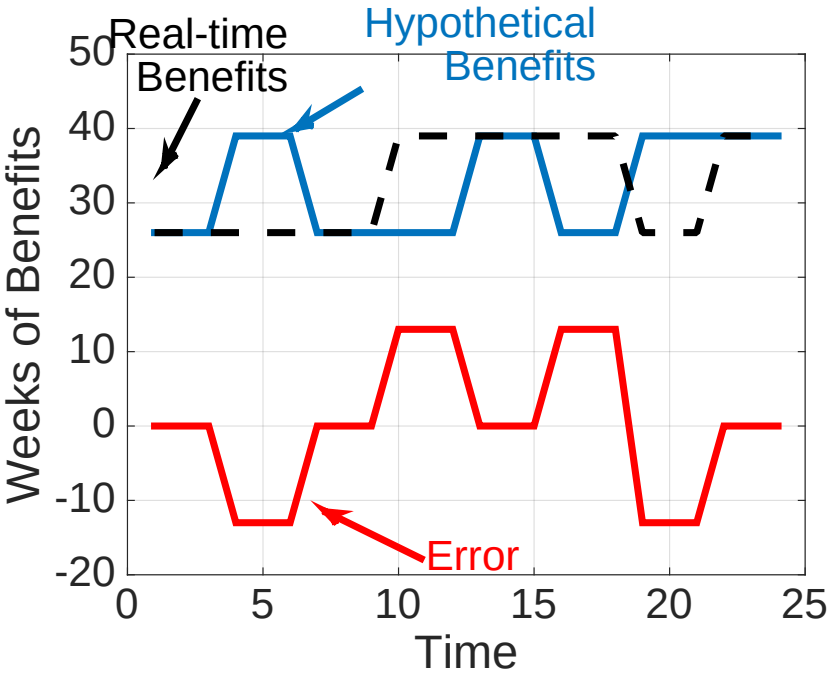

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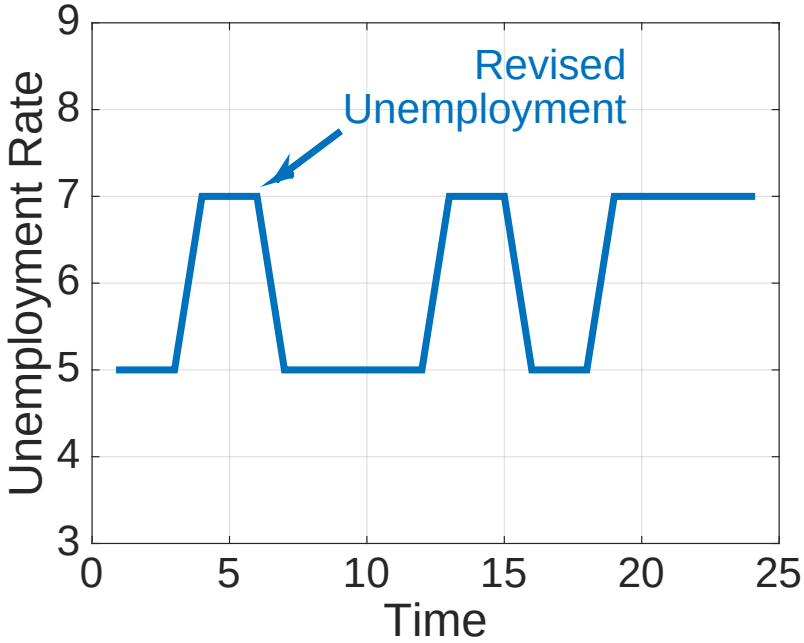

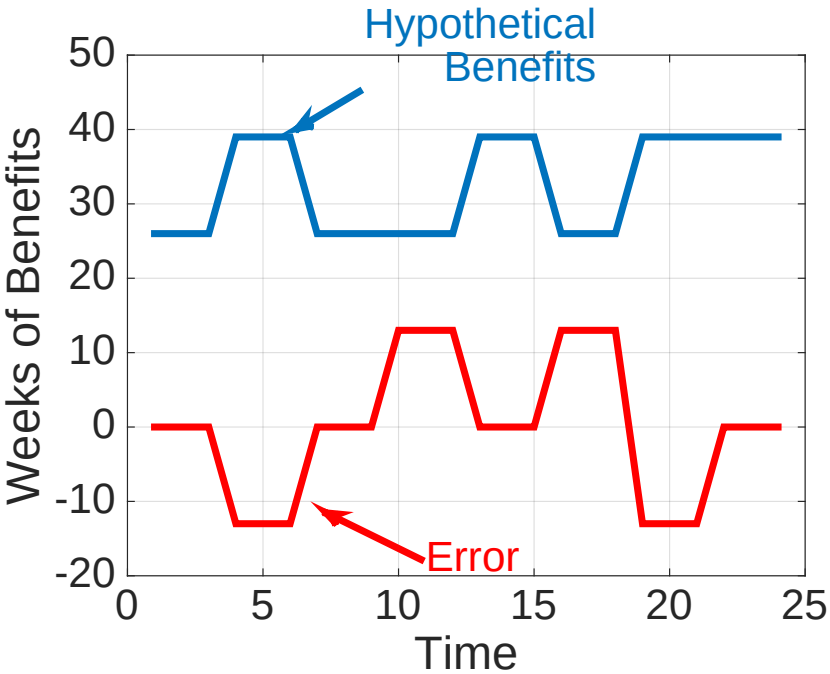

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Evidence of the Bias in the Data

- Error $\hat{T}_{s,t}$ and hypothetical $\tilde{T}_{s,t}$ are negatively correlated:

$$\hat{T}_{s,t} = -\mathbf{0.061}\tilde{T}_{s,t} + \delta_s + \delta_t + \epsilon^T_{s,t}.$$

- Hypothetical $\tilde{T}_{s,t}$ and revised $\tilde{u}_{s,t}$ are positively correlated:

$$\tilde{T}_{s,t} = \mathbf{0.879}\tilde{u}_{s,t} + \delta_s + \delta_t + \epsilon^u_{s,t}.$$

- Conclusion: Regression $\tilde{u}_{s,t} = \beta\hat{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}$ is biased:

$$\epsilon \to \tilde{u} \to \tilde{T} \to \hat{T}.$$

- CRK use innovations to $\hat{T}_{s,t}$:

$$\nu_{s,t} = \hat{T}_{s,t} - \mathbb{E}_{t-1}\hat{T}_{s,t}.$$

- This does not affect the bias and indeed the same endogeneity problems arise:

$$\nu_{s,t} = -\mathbf{0.014}\tilde{T}_{s,t} + \delta_s + \delta_t + \epsilon^I_{s,t}.$$

Can We Overcome the Bias?

- CRK's interpretation:
  - Revised unemployment measure, $\tilde{u}_{s,t}$, is the truth,
  - Real-time measure, $u_{s,t}$, is the truth + a random error $\hat{u}_{s,t}$:

$$u_{s,t} = \tilde{u}_{s,t} + \hat{u}_{s,t}.$$

- Taking CRK's idea seriously, the exogenous measurement error, $\hat{u}_{s,t}$, is a perfect instrument: correlated with benefits and benefit errors, but independent of $\tilde{u}_{s,t}$.
- The right regression then uses $\hat{u}_{s,t}$ as an instrument:

$$\begin{aligned}
\tilde{u}_{s,t} &= \mathbf{0.208}\,(s.e.\,0.092)\,\hat{T}_{s,t} + \delta_s + \delta_t + \epsilon^{\hat{T}}_{s,t} \\
\tilde{u}_{s,t} &= \mathbf{0.131}\,(s.e.\,0.052)\,T_{s,t} + \delta_s + \delta_t + \epsilon^{T}_{s,t} \\
\tilde{u}_{s,t} &= \mathbf{0.573}\,(s.e.\,0.275)\,\nu_{s,t} + \delta_s + \delta_t + \epsilon^{\nu}_{s,t}
\end{aligned}$$

- The effects are huge, e.g. 0.573*17*18=175, or an increase in unemployment by 175 p.p.
  $(\text{coef.} * \frac{99-26}{4.3} * \frac{54\,\text{mo. ext. ben. policy in place during Gr. Ress.}}{3\,\text{mo. ext. ben. policy in place after CRK innov.}})$

$\hat{u}_{s,t}$ is not Measurement Error

- Recall:
$$u_{s,t} = \tilde{u}_{s,t} + \hat{u}_{s,t}.$$
- Test: the "error" must be independent of the truth, especially for a fixed benefit error $\hat{T}_{s,t}$.
- In the data (for $\hat{T}_{s,t} = 0$):
$$\tilde{u}_{s,t} = \mathbf{0.111}\,(s.e.\,0.024)\,\hat{u}_{s,t} + \delta_s + \delta_t + \epsilon^u_{s,t}.$$
- Another test:
$$\tilde{T}_{s,t} = \mathbf{0.147}\,(s.e.\,0.039)\,\hat{u}_{s,t} + \delta_s + \delta_t + \epsilon^T_{s,t}.$$
- Not surprising: the 2015 data revision CRK rely on reflects not only better data but a host of methodological changes.
- If $\hat{u}_{s,t}$ is not measurement error, then the corresponding $\hat{T}_{s,t}$ cannot be measurement error either.

Why Don't CRK Report a Large Bias in the Model?

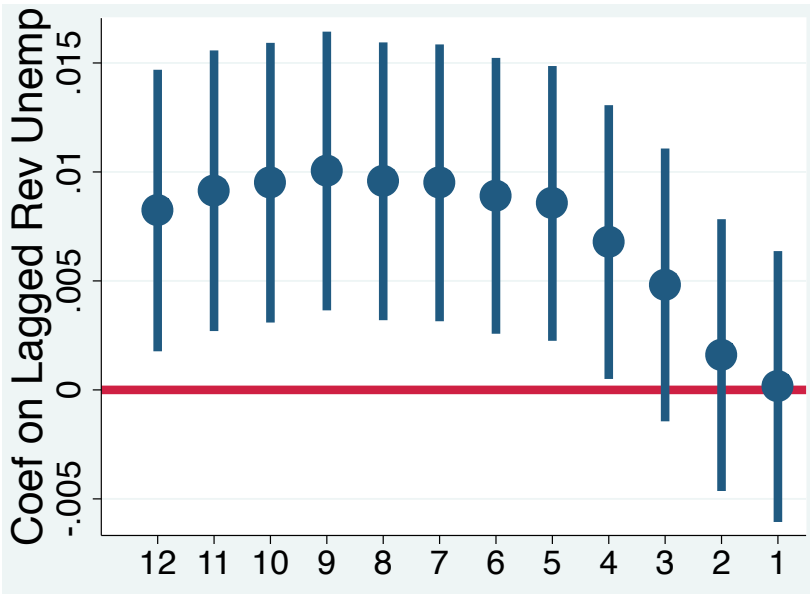
- They do not treat the model as they treat the data.
- Data: unemployment is measured with "error," giving rise to the error in benefits. This induces negative co-movement between revised unemployment and benefit errors and leads to the bias.
- CRK Model: Assume that the process for measurement error in benefits is independent of unemployment.
- The model in CRK with high b and one threshold at 6% (results fully robust to more thresholds)
  - CRK way: $\tilde{u}_{s,t} = \mathbf{0.07}\,(s.e.\,0.019)\,\hat{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}$.
  - Correct way: $\tilde{u}_{s,t} = -0.088\,(s.e.\,0.06)\,\hat{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}$.

Why Innovations?

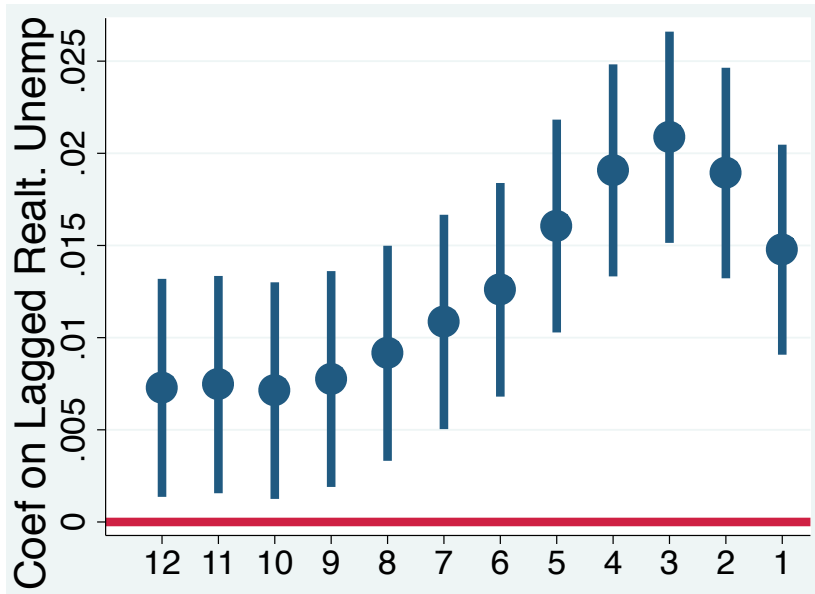
- CRK do not use benefit errors, $\hat{T}_{s,t}$, but error innovations:

$$\nu_{s,t} = \hat{T}_{s,t} - \mathbb{E}_{t-1}\hat{T}_{s,t}.$$

- Requires arbitrary choices about agents' information sets.
- The identification argument does not involve innovations.
- CRK claim innovations are unpredictable.
- Defies logic. Benefits are a deterministic known function of *past* unemployment. Properly constructed time t innovations conditional on information at $t-1$ are zero.



(a) Lagged Revised Unemp.



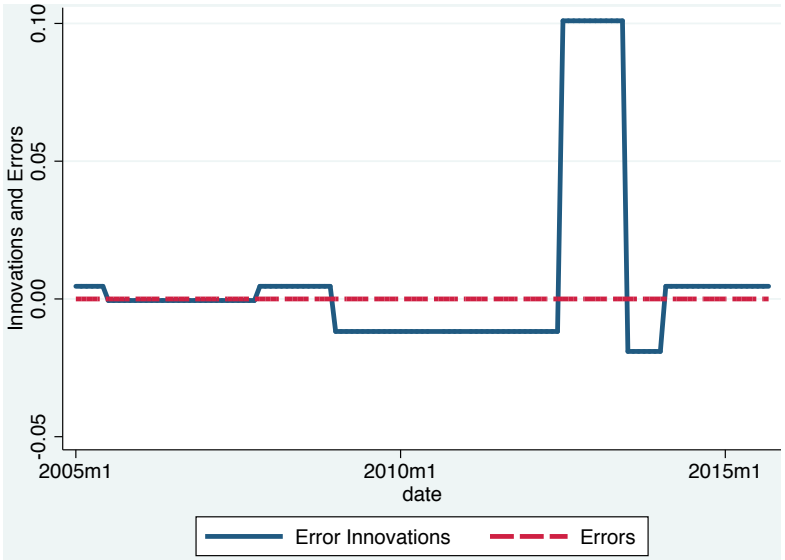
(b) Lagged Real-Time Unemp.

Construction of Innovations

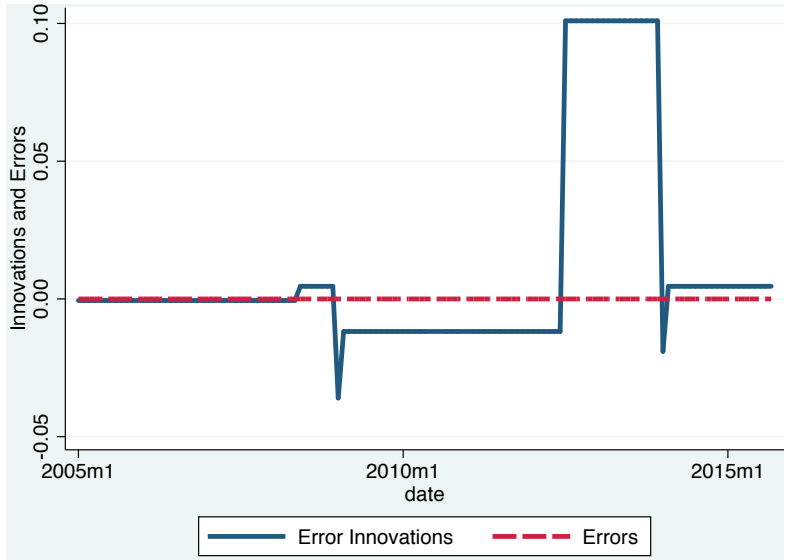
- To get $\mathbb{E}_{t-1}\hat{T}_{s,t}$, CRK estimate separate transition matrices

$$\pi_T = \left(\hat{T}_{s,t+1} = x_j \,|\, \hat{T}_{s,t} = x_i;\ \tilde{u}_{s,t}\right)$$

  for different regions of $\tilde{u}$: $\tilde{u} < 0.06$, $0.06 \leq \tilde{u} < 0.065$, etc.
- Inconsistent with extension formulas used to construct $\hat{T}_{s,t}$.
- Use the LHS variable in the key regression to construct the RHS regressor.
- This procedure has no economic justification and only introduces more biases of arbitrary sign and magnitude.



(a) California

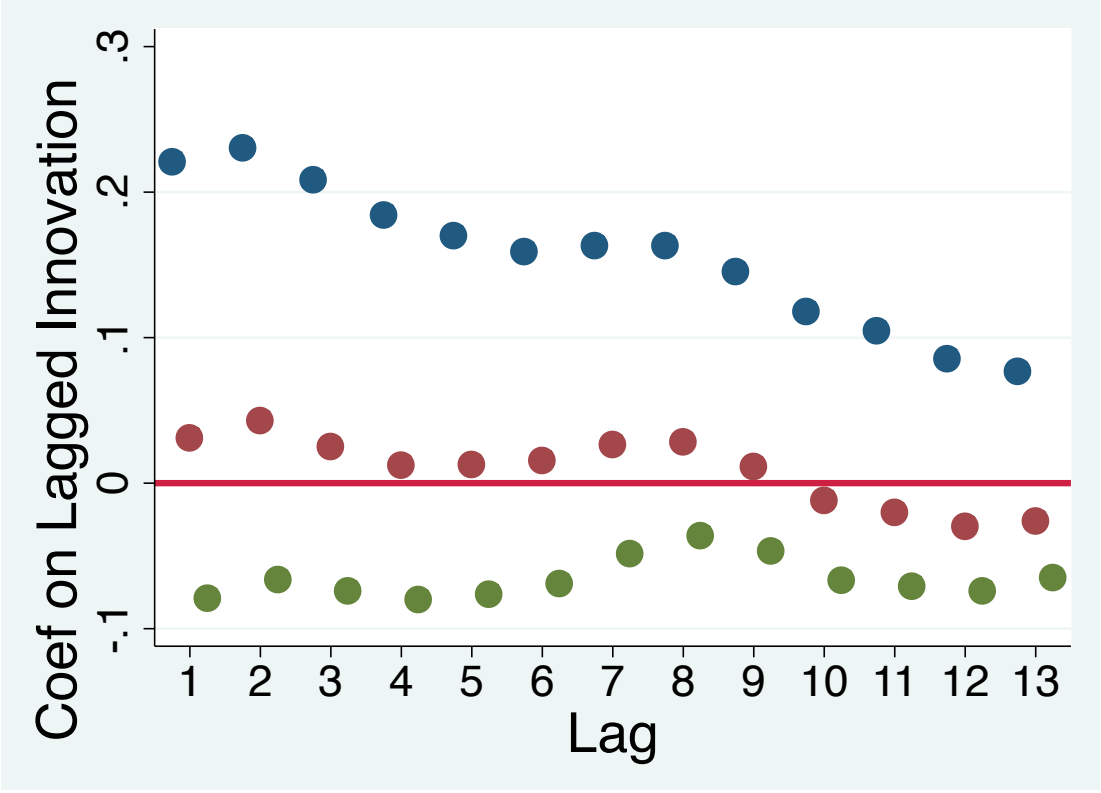


(b) Nevada

Results are Arbitrary

- Using data generated by the same model used above, estimate innovations in $\hat{T}_{s,t}$ for three partitions of $\tilde{u}$ space and use them to estimate the main regression in CRK:

1. $\tilde{u} < 0.065$, $\tilde{u} \geq 0.065$,
2. $\tilde{u} < 0.063$, $\tilde{u} \geq 0.063$,
3. $\tilde{u} < 0.071$, $\tilde{u} \geq 0.071$.



Summary

- CRK's empirical methodology based on transitory mistakes is not informative about the effects of UI extensions on job creation, which is the main focus of the recent literature.
- The estimator is severely negatively biased.
- Can't overcome this bias because "measurement errors" in unemp. and benefits are not true measurement errors.
- The model is not suitable for inferring the effects of transitory extensions as it assumes that all unemployed eligible for benefits are affected, while only a tiny sliver of the population actually is.
- The model is not treated as the data, and the estimates in the model and in the data are not comparable.
- All quantitative results are driven by (unnecessarily) constructing innovations in benefit errors using a time-series model inconsistent with actual benefit formulas and by arbitrarily partitioning the space of unemployment.

Conclusion

- Properly measuring aggregate implications of UI benefit extensions is crucial for the assessment of this policy for macroeconomic stabilization.
- Also crucial for the development of aggregate labor market theory.