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


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 $\approx 1$ 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:

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- Shock \( \epsilon \) induces negative co-movement of \( \hat{T} \) and \( \tilde{u} \).
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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:

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

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

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

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

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

▶ 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:

$$\nu_{s,t} = -0.014\tilde{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}^I.$$
**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:
    \[
    \tilde{u}_{s,t} = 0.208 \ (s.e. \ 0.092) \ T_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}^T
    \]
    \[
    \tilde{u}_{s,t} = 0.131 \ (s.e. \ 0.052) \ T_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}^T
    \]
    \[
    \tilde{u}_{s,t} = 0.573 \ (s.e. \ 0.275) \ \nu_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}^\nu
    \]
  - The effects are huge, e.g. \(0.573 \times 17 \times 18 = 175\), or an increase in unemployment by 175 p.p.
    \[
    \text{(coef.} \times \frac{99-26}{4.3} \times \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 \( \hat{T}_{s,t} = 0 \)):
  \[ \tilde{u}_{s,t} = 0.111 \text{ (s.e. 0.024)} \hat{u}_{s,t} + \delta_s + \delta_t + \epsilon_{u,s,t}. \]

- Another test:
  \[ \tilde{T}_{s,t} = 0.147 \text{ (s.e. 0.039)} \hat{u}_{s,t} + \delta_s + \delta_t + \epsilon_{T,s,t}. \]

- 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: $\tilde{u}_{s,t} = 0.07 \ (s.e. \ 0.019) \hat{T}_{s,t} + \delta_s + \delta_t + \epsilon_{s,t}$.
  
  - 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.

![Graphs](image.png)

(a) Lagged Revised Unemp.

(b) Lagged Real-Time Unemp.
Construction of Innovations

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

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

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.

![Graphs showing innovations and errors for California and Nevada](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. $\tilde{u} < 0.071$, $\tilde{u} \geq 0.071$. 

![Graph showing Coef on Lagged Innovation against Lag](image-url)
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.