Discussion of 'On the Asymmetrical Sensitivity of the Distribution of Real Wages to Business Cycle Fluctuations" by Barrela, Costa & Portugal

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The views on this presentation are those of the author and do not reflect the positions of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

The Cyclicality of Wages

- Individual income y, aggregate activity Y
- Very important question in macroeconomics: what is the sign of $\partial y / \partial Y$?
  - Calibration target for modern DSGE models (i.e., HANK)
  - Crucial for the effects of aggregate shocks, fiscal and monetary policy...
- For a majority of workers, $y \simeq w \times n$

This Paper: how does $\partial w / \partial Y$ vary across the w distribution?

This Paper - Overview

How does $\partial w / \partial Y$ vary across the w distribution?

- Authors use matched employer-employee data from Quadros de Pessoal, 1986-2020
- Basic specification:

$$w_{i,t} = \alpha_1 UR_{t-1} + \gamma_1 UR_{t-1} \times \mathbb{I}[\text{new}] + \beta X_{i,t} + \eta X_t + \epsilon_{i,t}$$

  where (α_1, γ_1) are the coefficients of interest

- OLS estimates average effect $\Rightarrow$ done in the literature ✓
- **New**: authors run quantile regressions, estimate different (α_1, γ_1) across w-distribution

The Paper's Main Table (and Result)

	Mean	P10		P50		P90	
	OLS	QR	MM-QR	QR	MM-QR	QR	MM-QR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$UR_{(t-1)}$	-1.094***	-0.652***	-0.927***	-1.098***	-1.076***	-1.201***	-1.287***
	(0.140)	(0.090)	(0.127)	(0.136)	(0.136)	(0.149)	(0.165)
$UR_{(t-1)} \cdot \mathbb{1}\{H = 1\}$	-0.449***	-0.380***	-0.311***	-0.381***	-0.434***	-0.631***	-0.609***
	(0.050)	(0.061)	(0.050)	(0.044)	(0.047)	(0.094)	(0.096)
Observations	48,061,398						

Blue highlights $= \alpha_1$, yellow highlights $= \gamma_1$

$$w_{i,t} = \alpha_1 UR_{t-1} + \gamma_1 UR_{t-1} \times \mathbb{I}[\text{new}] + \beta X_{i,t} + \eta X_t + \epsilon_{i,t}$$

The Rest of the Paper

Authors dissect result as much as humanly possible ...which makes my life hard!

1. How much is this driven by the cyclicality of minimum and CBA wages?
   - Some, but not all: wage cushion's cyclicality $\uparrow$ with w
2. How much is this driven by gender and education?
   - Happens in both genders; variation in cyclicality larger for females
   - Cyclicality for high education $\sim$ constant; increasing for low education
3. How much is this driven by stayers vs. switchers?
   - Mostly by stayers when firm- and worker-FE included.
4. How much is this driven by match quality?
   - Not much for stayers, a lot for switchers.

My Comments

1. Decomposing the effects

2. Further work: application to inflation

Comment 1: Variance Decomposition

- Authors show that wages in Portugal for worker i can be decomposed as

$$w_{i,t} = w_t^{\min} + w_{o(i),t}^{CBA} + \eta_{i,t}$$

  - $w_t^{\min}$: minimum national wage
  - $w_{o(i),t}^{CBA}$: CBA wage floor for occupation $o(i)$
  - $\eta_{i,t}$: wage cushion for worker i

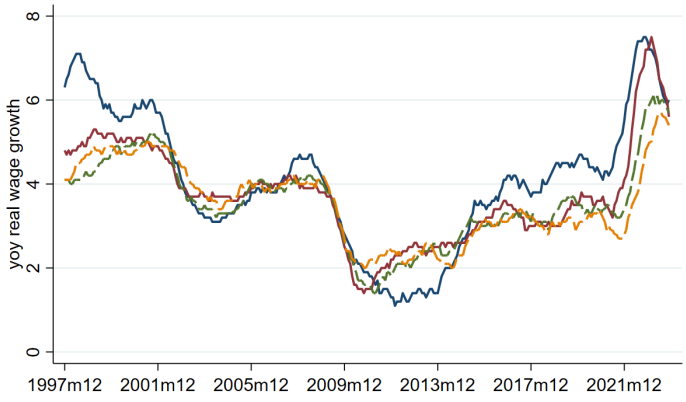
- $w_t^{\min}$ is the same for everyone, so no varying cyclicality
- But both $w_{o(i),t}^{CBA}$ and $\eta_{i,t}$ exhibit varying cyclicality
- Is it possible to perform a quantitative decomposition?
  - i.e., x% of the variation in cyclicality comes from CBA vs. cushion
- This seems relevant for labor policy and regulation.

Comment 2: Conditional Cyclicality wrt Inflation

- What if instead of *UR*, we consider π?
- Assuming no or imperfect indexation, real hourly wages should react negatively to inflation when controlling for pure cycle effects
- Does this vary across the wage distribution?
- Conjecture: $\eta_{i,t}$ is the main source of compensation vs. inflation
- Corollary: effects should be stronger for lower wages, where cushions are low

Toy Replication for the US

Compute yoy real wage growth across different wage quartiles for the US



Sources: Atlanta Fed, FRED

Toy Replication for the US

Run monthly regressions of the type

$$\Delta \log w_t = \beta_0 + \alpha_1 UR_{t-12} + \epsilon_t$$

	Overall	Q1	Q2	Q3	Q4
UR	-0.39***	-0.54***	-0.38***	-0.37***	-0.32***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
Observations	300	300	300	300	300

1. Aggregate cyclicality ✓
2. Conditional cyclicality behaves in the opposite way
   - Many institutional differences, Portugal vs the US
   - Log-levels vs growth rates?
   - This is wages only, not total compensation! (Guvenen et al. 2014)

Toy Replication for the US

Include lagged inflation in the regression

$$\Delta \log w_t = \beta_0 + \alpha_1 UR_{t-12} + \gamma_1 \pi_{t-12} + \epsilon_t$$

	Overall	Q1	Q2	Q3	Q4
UR	-0.41***	-0.58***	-0.37***	-0.39***	-0.35***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)
π	-0.06	-0.11**	0.03	-0.06	-0.11*
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
Observations	300	300	300	300	300

1. No (conditional) cyclical effect of inflation in the aggregate
2. Conditional cyclical impact of inflation on Q1-Q4, not in Q2-Q3

Overall Assessment

- Very cool paper: great data, transparent methods, powerful results
- Results are important across multiple dimensions
  - Applied/immediate: Labor policy
  - Theoretical/abstract: calibration of macroeconomic models with heterogeneous agents
- Potential applications to other macroeconomic aggregates such as inflation