"Minimum Wage Increases and Vacancies"
Kudlyak, Tasci and Tuzemen

Discussant: John Grigsby

November 17, 2022

This Paper: A Brief Summary

- Literature largely finds small/zero effects of minimum wage on employment

- Theory: minimum wage should reduce quantity of labor demanded

- This paper: study vacancies as a more direct measure of labor demand

- Triple-difference specification

$$\ln V_{i,o,t} = \alpha_{i,o} + \mu_{o,t} + \gamma_{i,t} + \beta \ln(MW_{i,t}) \times AtRisk_o + \epsilon_{i,o,t}$$

Compare:
  - Occupations that are vs are not exposed to minimum wage
  - In states that do vs do not change minimum wage
  - At different times

- Fixed effects absorb lots of identification concerns

Large negative effect on vacancies

	(a) ln (Total Vacancies)			
	(1)	(2)	(3)	(4)
ln(MW_t)*At-Risk	-0.241***	0.642***	0.226*	-0.103
	(0.083)	(0.073)	(0.120)	(0.212)
Fixed Effects:				
County x Time	Yes	Yes	Yes	
County x Occupation	Yes	Yes		Yes
Occupation x Time	Yes		Yes	Yes
Clusters	51	51	51	51
Observations	2,930,908	2,930,908	2,931,708	2,932,275
R-squared	0.921	0.913	0.840	0.898

Small comment: column (4) could also have ln(MW) included without interaction

Discussion Outline

1. Lay out simple theory to think about employment vs vacancies

2. Implications for separations

3. Mechanisms: is the control also treated?

4. Estimation quibbles
   - Anticipation effects
   - State vs county level regressions
   - Real vs nominal

Theory: Employment vs Vacancies and Separations

An embarrassingly simple model of employment

Notation

- Employment: E_t
- Separation rate: s_t
- Vacancies: v_t
- Hire rate: $h(v_t)$

Law of Motion

$$E_{t+1} = (1 - s_t)E_t + h(v_t)E_t$$

or, letting $g_t \equiv E_{t+1}/E_t - 1$ denote employment growth,

$$g_t = h(v_t) - s_t$$

Effect of policy

Have LOM

$$g_t = h(v_t) - s_t$$

Totally differentiate and

$$dg = h'(v)dv - ds$$

After some algebra

$$d \ln g = \frac{h}{g} \epsilon_{h,v} d \ln v - \frac{s}{g} d \ln s$$

Change in employment growth is equal to weighted difference between

1. Change in hires, governed by elasticity of hire rate and $d \ln v$
2. Change in separations

Some simple math using some minimum wage estimates

$$\underbrace{d \ln g}_{=0} = \frac{h}{g}\epsilon_{h,v}d \ln v - \frac{s}{g}d \ln s$$

- Previous research: no employment effects of minimum wage

Some simple math using some minimum wage estimates

$$\underbrace{d \ln g}_{=0} = \frac{h}{g} \underbrace{\epsilon_{h,v}}_{=0.3} d \ln v - \frac{s}{g} d \ln s$$

- Previous research: no employment effects of minimum wage
- Assume $h(v) = \psi u^{\alpha} v^{1-\alpha}$ so elasticity of hires w.r.t. $v \approx 0.3$

Some simple math using some minimum wage estimates

$$\underbrace{d \ln g}_{=0} = \underbrace{\frac{h}{g}}_{=8} \underbrace{\epsilon_{h,v}}_{=0.3} d \ln v - \underbrace{\frac{s}{g}}_{=8} d \ln s$$

- Previous research: no employment effects of minimum wage
- Assume $h(v) = \psi u^{\alpha} v^{1-\alpha}$ so elasticity of hires w.r.t. $v \approx 0.3$
- Quarterly employment growth around 0.5% on average
- Quarterly hire and separation rate both around 4% on average

Some simple math using some minimum wage estimates

$$\underbrace{d\ln g}_{=0} = \underbrace{\frac{h}{g}}_{=8}\underbrace{\epsilon_{h,v}}_{=0.3}\overbrace{d\ln v}^{=-0.24} - \underbrace{\frac{s}{g}}_{=8}d\ln s$$

- Previous research: no employment effects of minimum wage
- Assume $h(v) = \psi u^\alpha v^{1-\alpha}$ so elasticity of hires w.r.t. $v \approx 0.3$
- Quarterly employment growth around 0.5% on average
- Quarterly hire and separation rate both around 4% on average
- **This paper** finds $d\ln v = -0.24$

Some simple math using some minimum wage estimates

$$d \ln g = \underbrace{\frac{h}{g}}_{=8} \underbrace{\epsilon_{h,v}}_{=0.3} \overbrace{d \ln v}^{=-0.24} - \underbrace{\frac{s}{g}}_{=8} d \ln s$$
$$\underbrace{}_{=0}$$

- Previous research: no employment effects of minimum wage

- Assume $h(v) = \psi u^{\alpha} v^{1-\alpha}$ so elasticity of hires w.r.t. $v \approx 0.3$

- Quarterly employment growth around 0.5% on average

- Quarterly hire and separation rate both around 4% on average

- **This paper** finds $d \ln v = -0.24$

Solving LOM, this implies minimum wage generates

$$d \ln s = \frac{d \ln v}{\epsilon_{h,v}} \approx -0.07$$

Is this reasonable?

To rationalize result, separation rate must fall by around 7%. Reasonable?

- Any chance of using JOLTS to get a handle on magnitude of separations effect?
  - Note difference between "separations" and "separations into non-employment"

- Maybe $d \ln g \neq 0$ for this group of jobs?
  - Could you use OES to estimate employment effect using your triple-diff specification?

Is this reasonable?

To rationalize result, separation rate must fall by around 7%. Reasonable?

- Any chance of using JOLTS to get a handle on magnitude of separations effect?
  - Note difference between "separations" and "separations into non-employment"

- Maybe $d \ln g \neq 0$ for this group of jobs?
  - Could you use OES to estimate employment effect using your triple-diff specification?

- Minimum wage increases job retention?

- Search effort falls as offered wage distribution compresses?

Separations and vacancy posting

- Commonly assume free entry to vacancy posting so that v satisfies

$$\underbrace{\kappa}_{\substack{\text{Vacancy} \\ \text{Cost}}} = \underbrace{q(v/u)}_{\substack{\text{Job-Filling} \\ \text{Rate}}} \underbrace{J(\underline{w}, s, \cdot)}_{\substack{\text{Value of} \\ \text{Filled Job}}}$$

Value of filled job falls as separation rate rises

- Should be some interdependence between separations and vacancy posting in eqm
  - Vacancies not a "pure" labor demand measurement

- My hypothesis: canonical model would struggle to rationalize joint movement of v and s

- Could be fruitful to think which models may be successful? Labor supply? Job-Ladder?

Estimation suggestions and mechanisms

- Could it be that firms substitute away from minimum wage workers towards capital?
  - Self-checkout stations, order boards in fast food, etc.
- If so, then could labor demand for skilled workers rise with minimum wage?
- In which case, occupations "not at risk" in fact get positive shock

Are high-wage jobs "untreated?"

- Could it be that firms substitute away from minimum wage workers towards capital?
  - Self-checkout stations, order boards in fast food, etc.
- If so, then could labor demand for skilled workers rise with minimum wage?
- In which case, occupations "not at risk" in fact get positive shock
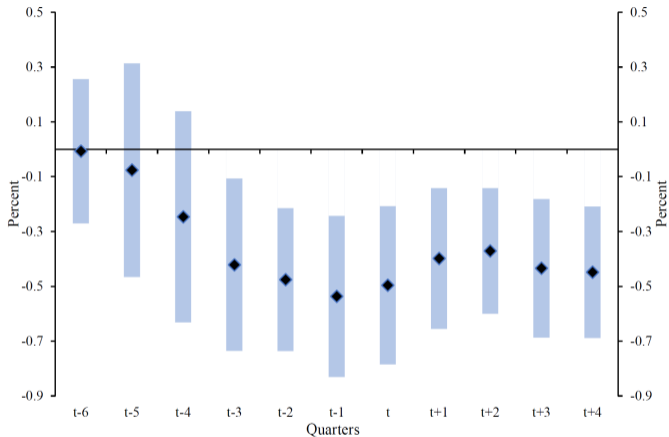
Two suggestions

1. Could estimate, occupation-by-occupation

$$\ln V_{i,o,t} = \alpha_{i,o} + \mu_{o,t} + \beta_o \ln(MW_{i,t}) + \epsilon_{i,o,t}$$

   and see if "not-at-risk" occupations significant positively respond to MW

2. Placebo check: re-assign "at-risk" indicator randomly

Anticipation Effects

- Theory for long anticipation effects?
- What is average lag between announcement and implementation of minimum wage?
- What is average separation rate among at-risk jobs? Prior: these are high turnover jobs

Assorted other quibbles/questions

- How do I think about these results in light of Berger et al. (2022) or Hurst et al (2022)?
  - Monopsony power is small? Coincident labor supply shock?

- Why "at-risk?" Why not "exposed?" No notion of risk in the paper...

- County doesn't buy you much because treatment is at state level
  - May increase precision and reduce ln(0) problem by running state-level regressions

- Real vs nominal
  - Should we see something different in high vs low inflation periods?

- Cyclicality of vacancies in high vs low minimum wage states: maybe a different paper?

Conclusion

- Nice paper looking at effect of minimum wage on vacancies

- Find large negative effect on vacancy posting

- Implies substantial movement in separations if zero employment effect

- Would be nice to see placebo: do non-exposed occupations have no vacancy effect?