Wage Determination Across Firms

Horng Chern Wong
University of Warwick

Discussion by: Alessandro Ruggieri (UAB and BGSE)

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Motivations

- Large evidence of between-firm wage differences for *seemingly identical* workers (Abowd, Kramarz and Margolis, 99)

$$\underbrace{\log w_{it}}_{\substack{\text{worker's} \\ \text{log-compensation}}} = \underbrace{X_{it}}_{\substack{\text{worker's} \\ \text{controls}}} \beta + \underbrace{\gamma_i}_{\substack{\text{worker's} \\ \text{fixed-effect}}} + \underbrace{\delta_{j(i,t)}}_{\substack{\text{firm's} \\ \text{fixed-effect}}} + \underbrace{\epsilon_{it}}_{\text{residual}}$$

- Why is that important?
  - long-term wage losses of displaced workers (Lachowska et al., 18)
  - gender wage gap (Card et al., 15)
  - firm-size wage premium (Bloom et al., 18).

Research question

- What are the drivers of the cross-sectional variation of firm-specific wage premia?

Contribution

Methodology

- Builds a framework for wage structural decomposition, featuring:
  - monopsonistic competition in labor market (wage posting+effort)
  - heterogeneous goods markups across firms
  - no restrictions on the elasticity of substitution between inputs
  - firm-specific Hicks neutral productivity
- Estimation performed in four steps
  - compute the average labor productivity in efficiency units
  - estimate production function (control function approach)
  - use firms$'$ intermediate input spending to obtain goods markups
  - compute the firm-specific wage markdowns

Data

- Linked matched employer-employee French administrative datasets
- Time span: 1995-2014
- Sample: Firms with 5+ employees, Workers 16-65 y.o, 2-digit sectors with at least 500 obs within 7-year interval

Firm-specific wage premium

$$\delta = \underbrace{\lambda^{-1}}_{\substack{\text{wage}\\ \text{markdown}}} \times \underbrace{\mu^{-1}}_{\substack{\text{goods}\\ \text{markup}}} \times \underbrace{\alpha_h}_{\substack{\text{labor}\\ \text{intensity}}} \times \underbrace{\overline{\text{Rev}}/\text{L}}_{\substack{\text{average}\\ \text{revenue product}\\ \text{of effective labor}}}$$

Shapley Decomposition of the Variation in Firm Wage Premium

Firm heterogeneity	Shapley
Wage markdown	0.21
Goods markup	0.09
Labor intensity	0.24
A.R.P.H.	0.46
R^2	1
Average # of firms p.y.	273,031
Average # of obs p.y.	7,095,504

Main wage regression:

$$\underbrace{\log w_{it}}_{\substack{\text{worker's} \\ \text{log-compensation}}} = \underbrace{X_{it}}_{\substack{\text{worker's} \\ \text{controls}}} \beta + \underbrace{\gamma_i}_{\substack{\text{worker's} \\ \text{fixed-effect}}} + \underbrace{\delta_{j(i,t)}}_{\substack{\text{firm's} \\ \text{fixed-effect}}} + \underbrace{\epsilon_{it}}_{\text{residual}}$$

$$\epsilon_{it} = \underbrace{\eta_{i,j(i,t)}}_{\substack{\text{match} \\ \text{effect}}} + \underbrace{\zeta_{i,t}}_{\substack{\text{transitory} \\ \text{error}}}$$

Identification assumptions:

$$\text{cov}(\eta_{i,j(i,t)}, \delta_{j(i,t)}) = 0 \quad \text{cov}(\eta_{i,j(i,t)}, \delta_i) = 0$$

- No history dependence: wage (per efficiency unit) is renegotiated every period for everybody
- No life-cycle wage dynamics i.e., no on-the-job learning and training (Flinn et al, 16)

Comments

No workers' complementarity in production

- worker efficiency units enter the firm's production function additively

Second-step estimation

- Perfectly competitive markets for inputs allows to recover goods markup, μ

$$\text{material-expenditure} = \mu^{-1} \times \underbrace{\alpha_m}_{\substack{\text{material intensity} \\ \text{(second-step)}}} \times \underbrace{\text{Rev}}_{\substack{\text{revenues} \\ \text{(first step)}}}$$

- i.e., financial constraints can generate a wedge in input demand function (Bigio and La'O, 16): third step in the estimation not valid!

Standard errors

- How precise is each component of the firm-wage premium estimated? Maybe too computational expensive!

Possible follow-ups

Firming-up inequality

- Recent trend of wage-inequality in US explained by *firm-driven* wage-inequality (Bloom et al., 18)
- Your framework suited to decompose this pattern into different channels!

Trade and inequality

- Firm component (and assortative matching) relevant to explain link between trade openness and income inequality (Impullitti et al. 18)
- Your framework can shed light on mechanisms behind this relation!