THE SOURCES OF THE UNION WAGE GAP

HUGO VILARES | Nova School of Business and Economics

MAIN GOAL AND INNOVATION

- Determinants of the union density
- A union wage gap curve
- The sources of the union wage gap

We build a zero inflated negative binomial model to assess the main drivers of unionization.

We combine a high dimensional fixed effect model and a kernel regression to obtain a non-linear semi parametric union wage gap curve.

We decompose the wage gap in its instrumental - Compensation Tables, average Job Title, average Productivity.

DETERMINANTS OF UNION DENSITY

Zero Inflated Negative Binomial Model

\[ P(y|x) = \begin{cases} \frac{(1-\pi)}{\pi} & \text{for } y = 0 \\ \pi \frac{e^{\beta x}}{1+e^{\beta x}} & \text{for } y > 0 \end{cases} \]

Where y denotes the number of unionized workers at firm level, x the covariates which influence unionization, and \( \pi \) is a zero inflated parameter (The probability of having unionization, controlled properly for its size is constant).

UNION WAGE GAP CURVE

Union density’s fixed effect model

\[ \ln (y_{u,f,t}) = \alpha_u + x_{w,f,t} \beta + \epsilon_{u,f,t} \]

where \( y \) is the worker’s compensation, \( u \) is the firm level union density, and \( x \) is the matrix of characteristics of workers (\( x \)) and firm(\( f \)).

Kernel Regression

\[ \alpha_u = \mu(Y_{u,f}) + \tau_{u,t} \]

where \( \mu \) is the union density at firm level.

Produces a smoothed, non-linear, and semi-parametric curve which locally estimates the union wage gap.

CONCLUSIONS

- Union membership is around 11 percent, while the union coverage is 92 percent – Significant misalignment between density and coverage;
- Membership is more relevant in:
  - Larger firms;
  - Sectors sheltered from broad competition;
  - Previously public owned firms;

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- Full Model
  \[ \ln (y_{u,f,t}) = \alpha_u + \delta_1 x_{w,f,t} + \delta_2 x_{u,t} + \delta_3 x_{w,f,t} + \delta_4 x_{w,f,t} \]
- Base model
  \[ \ln (y_{u,f,t}) = \alpha_u + x_{w,f,t} \beta + \epsilon_{u,f,t} \]
- Final Equivalence
  \[ \sigma - \tau \approx \mu(Y_{u,f}) + \pi \]

Considers 3 sources of the union wage gap curve:

- The compensation tables of the firm;
- The definition of the job titles of the individuals;
- The productivity of the worker.

CONCLUSIONS

- The union wage gap is materialized through:
  - Alteration of Firm’s Wage Tables, increasing average compensation;
  - Redefinition of Job-titles, promoting the average worker to better remunerated job-titles;
  - Lower productivity of the average worker.