Summary:
The Elasticity of Labor Supply at the Establishment Level

Falch (2010)

https://github.com/s-saisw/readingSummary

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1 Introduction

- This paper aims to estimate the elasticity of labor suply of teachers at school level. Inelastic labor supply curve indicates imperfect competition in the labor market.
- It is usually difficult to estimate labor supply elasticity because
  - Labor supply is unobserved.
  - Wage is not exogenous.
- This paper solves the above problems by utilizing a peculiar instituitional setting in Norwegian labor market of teachers.
  - Labor supply is observed because schools with teachers shortage are allowed to hire uncertified teachers. One downside is we cannot observe supply level of schools with no shortage since there may be excess supply.
  - Wage is exogenous because teachers at schools that have history of teachers shortage receive wage premium.

2 Empirical strategy

- This paper estimates the following equation

$$s_{it} = \delta_i + \delta_t + \alpha n_{it-1} + \beta w_{it} + \gamma_x x_{it} + \eta^s_{it}, \tag{1}$$

  where
  s_{it}: supply toward firm i in period t
  n_{it-1}: employment level
- Difficuties in estimating (1) include
  - It is unclear from theory which variables are included in x. To fix this problem, this paper includes several specifications for x.
  - We can only observe supply curve faced by schools with shortage. However, schools with labor shortage are inherently supply constrained, i.e. employment level is determined by supply level, $n_{it-1} = s_{it-1}$. This creates endogeneity problems with *lagged dependent variable*. $\hat{\alpha}$ is downward biased if $\alpha > 0$.

  - Since supply is only observed in school with shortage, there is *selection issue.*

- This paper addresses the problem with lagged dependent variable by omitting it in the baseline equation, and addding it back in sensitivity analysis.

- This paper addresses selection issue in three approaches.

  1. Wooldridge's method: Include lagged selection variable, I_{t-1} in the model. Ideally, we want I_{t-1} to not be statistically significant since selection in period $t-1$ should not be correlated with in the equation at time t.
  2. Replacing s_{it} on the LHS with n_{it}: This is based on the assumption that in years without excess demand, supply should be close to demand.
  3. Modeling selection process and estimating type 2 tobit model: cf. Amemiya (1984)

3 Results

- Labor supply elasticity ranges from 1.0–1.9, indicating imperfect competition in the labor market.