

Model Over-qualification in Labor Markets

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Why “over-qualification” exists in labor markets?

- Productivity is not directly unobservable before hired;
- Firms choose the “best” candidate to maximize profit;
- Stronger background, such as more education, are positively correlated with higher productivity;
- Firms choose the candidate that is the best fit for a given position;
- Why do firms not always simply choose the one with the strongest background?

Where could the constrain on demand of background come from?

- Researchers such as Sicherman (1991) and Alba-Ramirez (1993) found that over schooled workers have higher rates of firm and occupational mobility than other worker with similar characteristics, also over schooled workers are more likely to move to higher level occupations.
- Suppose firms choose candidates with overly strong background, even if they accept the offers, they may not stay in the firm for very long.
- If there is cost associated with hiring and employee transition, firms face a trade-off between expected productivity and expected serving time (or expected transition cost in the future).

How could we model over-qualification in Labor Markets?

- Consider hiring as a repeatedly played sequential game between firms and employees:
- Stage 1: A firm has a vacancy and steps into labor markets search for candidates without any experience;
- Stage 2: Candidates convey their observable characteristics and the firm makes hiring decisions. Since the firm has no past experience, the candidates with the very strong background will be selected.
- Stage 3: One of the candidates accepts the offer and works for a period of time in the firm.
- Stage 4: Employed candidate worked for a period of time and leave the firm. Simultaneously, the firm gets a vacancy and enters labor markets to search again. However, this time, the firm has some experience.
- Stage 5: One of the candidates was hired, worked for the firm for a period of time and leaves.
- Stage 6: The firm play the hiring game again with more experience.
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Data

- IPUMS-SESTAT: Scientists and Engineers Statistical Data System (SESTAT)
- Survey college degree holders in science or engineering
- The longitudinal feature allow us to track job transition;
- Information on whether a firm is new is crucial on empirical testing of the model;
- The dataset is available on IPUMS: www.sestat.ipums.org.

How could we test the model empirically?

- Main argument: less experienced firms are more likely to have mismatches.
- First, predicts the alternative wage and calculate the ratio of current wage over predicted wage.

- Does new firms have higher current-alternative wage ratio?

Table 1. Current-alternative wage ratio by new business status

Variable		
New business	0.05***	0.07***
	[0.0082]	[0.0082]
With other control variables	No	Yes

- Does new firms experience more employee transitions?

Table 2. Probability of change employer

Variable			
New business	0.96***	0.89***	0.71***
	[0.0135]	[0.0553]	[0.12034]
Wage ratio			0.04*
			[0.0237]
Ratio*new business			0.11
			[0.0702]
With other control variables	No	Yes	Yes

- In sum, new firms pay higher current wage relative to alternative wage. Also, new firms experience more employee transitions, even with wage ratio controlled.