

Labor Market Network Meeting

Firm-Size Wage Gaps Along the Formal-Informal Divide:

Theory and Evidence

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 - Equilibrium Notion
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Introduction / Literature

- Observationally equivalent workers are paid better in big firms
- Finding is summarized as firm-size wage gap in the literature
- Holds across countries, industries, managerial responsibilities
- Explanations offered for size wage gap
 - Productivity differences
 - Monitoring costs
 - Unobserved worker heterogeneity and selection

Introduction / Literature

- In this paper, we first document a new fact: firm-size wage gap is even more pronounced for the informal workers
- To explain this fact theoretically, we propose a two stage wage posting game
- The model incorporates new fact on the formal-informal divide via two different channels
 - First, the tax burden on the formal workers creates a wedge between formal and informal employment, resulting in higher gap for informal
 - and, the labor supply effect due to higher wage postings of bigger firms

Empirical Findings

- Turkstat household labor force survey includes the questions on
 - the size of the firm in which the employer works
 - wages
 - formality status of the worker
 - and other controls such as education, tenure, age, gender etc.
- It provides a natural framework to study formality issues given more than 25 percent works informally

Table

Empirical Findings

Slopes

Empirical Findings

Two Stage Wage Posting Game

- Two stage wage posting game:
 - Firms announce the vacancies and the wage postings associated with them
 - Observing the set of posted wages, potential employers decide to enter the job market and form an application strategy
 - Given the workers are identical (in line with the empirical part), they will form symmetric application strategies

Two Stage Wage Posting Game

Employers:

- After observing a set of wage offers ω , workers calculate the expected return, which depends on
 - posted wage offer
 - probability of getting the job (decreases with the number of applicants, meaning that negatively correlated with the wage)
- Then, they apply to the jobs that offer expected market return via a mixed strategy

Two Stage Wage Posting Game

Firms:

- Since the vacancies are costly, the firm hopes to attract at least one worker by the posted wage
- The hiring strategy
 - If no worker applies, the vacancy is unfilled
 - Hire the sole applicant if there is only one
 - Uniformly hire one applicant if more than one given they are identical

Equilibrium Notion

- A notion of subgame perfection
 - The firm wage posting is a best response to expected worker behavior,
 - and worker application strategy is a best response to firm's wage posting strategy
- BUT: Here the worker is so small that, he knows his actions will not create any effects on the equilibrium
 - So a notion of competitive equilibrium
- We will call it subgame perfect competitive equilibrium following Lang, Manove, Dickens (2005)

Equilibrium

- In the equilibrium, all expected wages converts to expected market income(EMI)
 - If the posted wage is smaller than EMI, no one applies
 - If it is bigger, number of applicants will suppass the wage down

$$\omega_j = \frac{g(N_j)\mu_j}{e^{\mu_j} - 1}$$

Productivity Effect

- The critical assumption following the literature: more productive firms are bigger
- Therefore, once there is a vacancy, it is more costly to a big firm than a small one
- This yields higher wage offers to make sure vacancy will be filled as soon as possible
- But this creates firm-size wage gap between small and big firms

Labor Supply Effect

- On the other hand, higher wages mean more application to vacancy given identical workers
- Acting on the expected number of applicants, that will help the firm reduce the wage without creating possibility of unfilled vacancy
- Two opposing effects will result in higher wages by big firms but not as high as we observe without the labor supply effect

The Role of Taxes

- Till here, explanation for firm-size wage gap provided without any relation to formal-informal divide
 - high productivity leads costly vacancies, incentives higher wage postings by big firms
 - high number of applicants reduces the upward pressure on wages
 - results in size wage gap in a single market
- The main role played by the taxes: A wedge between formal-informal jobs, which offers room for policy

The Role of Taxes

- When the tax entered the critical equation of our model,

$$\textit{Formal} : \omega_j = \frac{g(N_j)\mu_j}{(1 + \tau)(e^{\mu_j} - 1)}$$

- Since the only tax payers are formal workers, being an informal worker equivalent to $\tau=0$
- That means wage gap is higher in informal sector

Labor Supply Effect in Informal Market

- Even when the cost (tax) channel is shut, the labor supply effect on wages mitigates our results in formal-informal divide
- First observe the informal jobs are not as attractive as formal ones given
 - durability of the job
 - health insurance, pensions
 - side payments: such as separation pay

- This results in lower demand for informal jobs when the wage is same with a formal one
- Therefore, the labor supply effect is weaker for informal jobs, which reduces the firm ability to lower the wage
- In the end, higher wage gap for informal jobs, no tax burden, no excess labor supply

US States

- One testable finding: when the tax burden is high, observed firm-size wage gap should be smaller
- To create a uniform setting, wage gaps are calculated between small (<500) and large firms (≥ 500) for 15 biggest US states
- tax burden is calculated as the differentiated part of the taxes among states, namely the unemployment insurance contribution
- after including the regular control variables...

Graph

US States