“Segmentation in Indian Labour Market”

Rayees Ahmad sheikh
SJMSOM IIT Bombay.
Outline

• Introduction
• Literature Review
• Methodology
• Results
• Conclusion
Introduction

• Majority of employment in developing countries is in informal sector
  
  - 80 percent in India (NCEUS, 2008)

• Informal Sector characterized by:
  - Lower Wages
  - Lesser taxes
  - Low Productivity

Therefore, there is wide wage gap between formal and informal sector.
Introduction

• What explains the wage Gap?
  - Segmentation in Market
  - Competitive Markets

• Or Is working in informal sector a voluntary choice or last resort to escape unemployment?
Introduction

• Heterogeneity in informal sector is unobserved?

• Studies in India have treated heterogeneity as observable? (Neog and Sahoo, 2018, Abraham, 2018, Narayanan, 2016)

• Does Job categorization mean heterogeneity?
Motivation

• India is employed in informal sector (NCEUS, 2008).

• Why informal sector is growing in India despite economic growth?

• Informal sector and goal of sustainable growth and poverty reduction
Literature Review

• developing countries have large informal sector  
  (Pradhan & Soest, 1995; La Porta & Schleifer, 2014)

• Informal sector size reduces with economic growth (Harris & Todaro, 1970)

• Informal Sector has low wages

• There exist barriers to formal sector (Reich et al., 1973; Flanagan, 2008)
Literature Review

• Segmentation or Competitive?  
  (Maloney, 1999 & Narayanan, 2015, Pratap & Quintin, 2006)

• Informal Sector is heterogeneous (Fields, 2005; Pratap & Quintin, 2006; Gunther & Launov, 2012)

• Heterogeneity is unobservable (Pratap & Quintin, 2006; Gunther & Launov, 2012)

• Some empirical studies in India have treated informal sector as homogenous (Neog & Sahoo, 2017; Abraham, 2017)
Methodology

• Finite Mixture Model

• Wages of individual “i” in sector “j”

\[ \ln y_{ij} = x_i \beta_j + u_{ij} \]

• Where error term \( u_{ij} \) follows normal distribution

• Informal sector poised is voluntarily choice, therefore

\[ y_{is} = z_i \gamma + u_{is} \]
The error terms of wage equation and selection equation are assumed to follow bivariate normal distribution.

\[
f(y_{ij} | y_{is} > 0) = \frac{\varphi((\ln y_{ij} - x_i' \beta_j) / \sigma_j)}{\sigma_j \Phi(z_i' \gamma)} \Phi\left( \frac{z_i' \gamma + (\rho_j / \sigma_j)[\ln y_{ij} - x_i' \beta_j]}{\sqrt{1 - \rho_j^2}} \right)
\]
Wage Distribution in sector

• As informal sector has unobservable heterogeneity, the wage distribution of segment $j$

\[
f(y_{ij}) = \sum_{j=1}^{J} \prod_{j} f(y_{ij} \mid y_{is} > 0, \theta_{j})
\]
Voluntary Choice or entry barrier?

- Maximization function if workers are assumed as wage maximizers,

\[
P(i \in Y_j) = P(\mathbb{E}[\ln y_{ij} \mid y_{is} > 0; x_i]) = \max_{I, l \in (1, J)} \{E[\ln y_{il} \mid y_{is} > 0; x_i] \}
\]
Data

• NSSO 68th round Survey
Summary Statistics

Kernel Density Plot of weekly earnings by formal and informal sector employment

- **Density of informal sector wages**
- **Density of formal sector wages**

_kernel = epanechnikov, bandwidth = 0.0825_
Summary Statistics

• Tables or Major Statistics
## Results

### Table 4: Akaike's information criterion and Bayesian information criterion

<table>
<thead>
<tr>
<th>Model</th>
<th>Observations</th>
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Segmentation

Predicted Wage Distribution of Informal Sector Segments
Results: Voluntary Choice or entry barrier restriction?

Table 7: Last resort or voluntary choice

<table>
<thead>
<tr>
<th></th>
<th>Linear Prediction</th>
<th>Predicted Posterior Probability</th>
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<tbody>
<tr>
<td>Formal Sector</td>
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<tr>
<td>IF Segment 1</td>
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<td>IF Segment 2</td>
<td>0.354</td>
<td>0.195</td>
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<tr>
<td>IF Segment 3</td>
<td>0.343</td>
<td>0.403</td>
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</tbody>
</table>
Conclusions

• Segmentation- Informal Sector is heterogeneous

• Different Wage equation in each segment of informal sector

• Voluntarily Choice in upper segment
**References**

• Thank You