

# “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

$$y_{is} = z_i' \gamma + u_{is}$$

# FMM .... Continued...

- 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

$$f(y_{ij}) = \sum_{j=1}^J \Pi_j f(y_{ij} | y_{is} > 0, \theta_j)$$

# Voluntary Choice or entry barrier ?

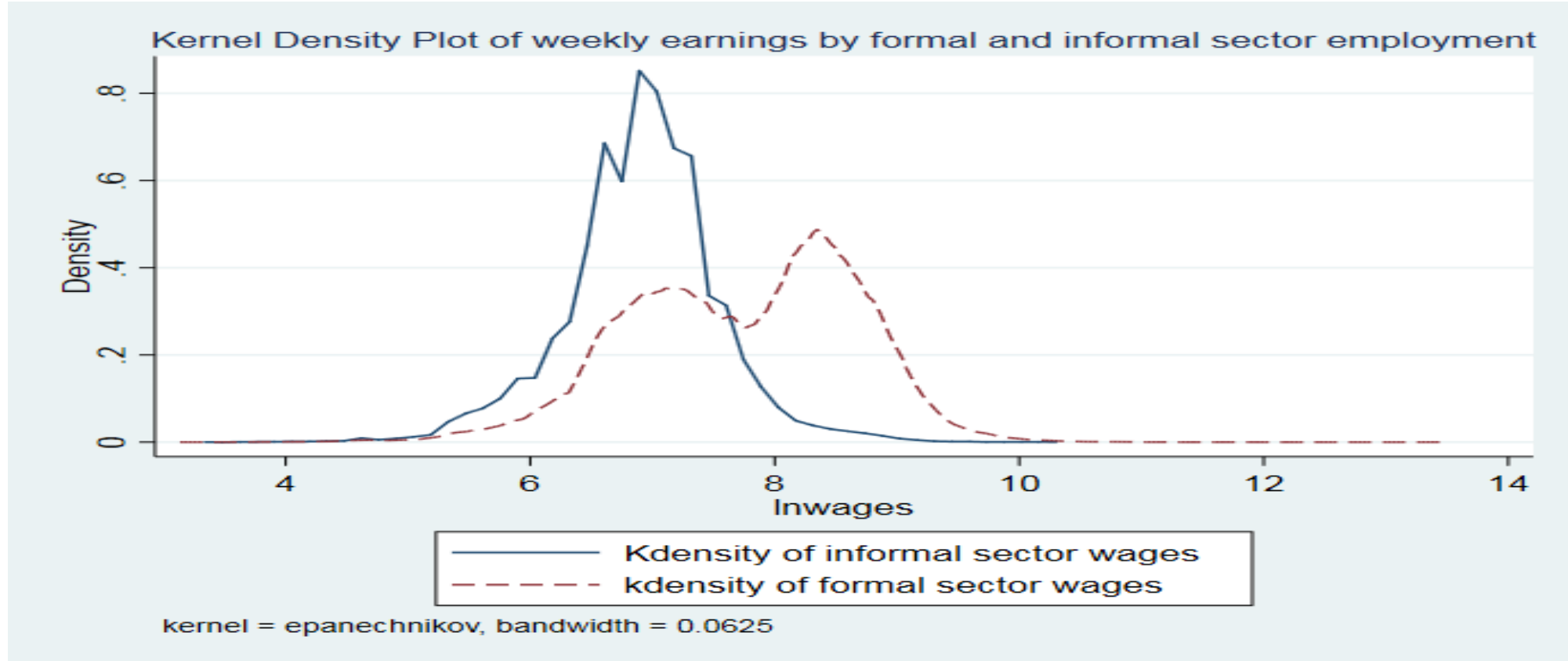
- Maximization function if workers are assumed as wage maximizers,

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

# Data

- NSSO 68<sup>th</sup> round Survey

# Summary Statistics



# Summary Statistics

- Tables or Major Statistics

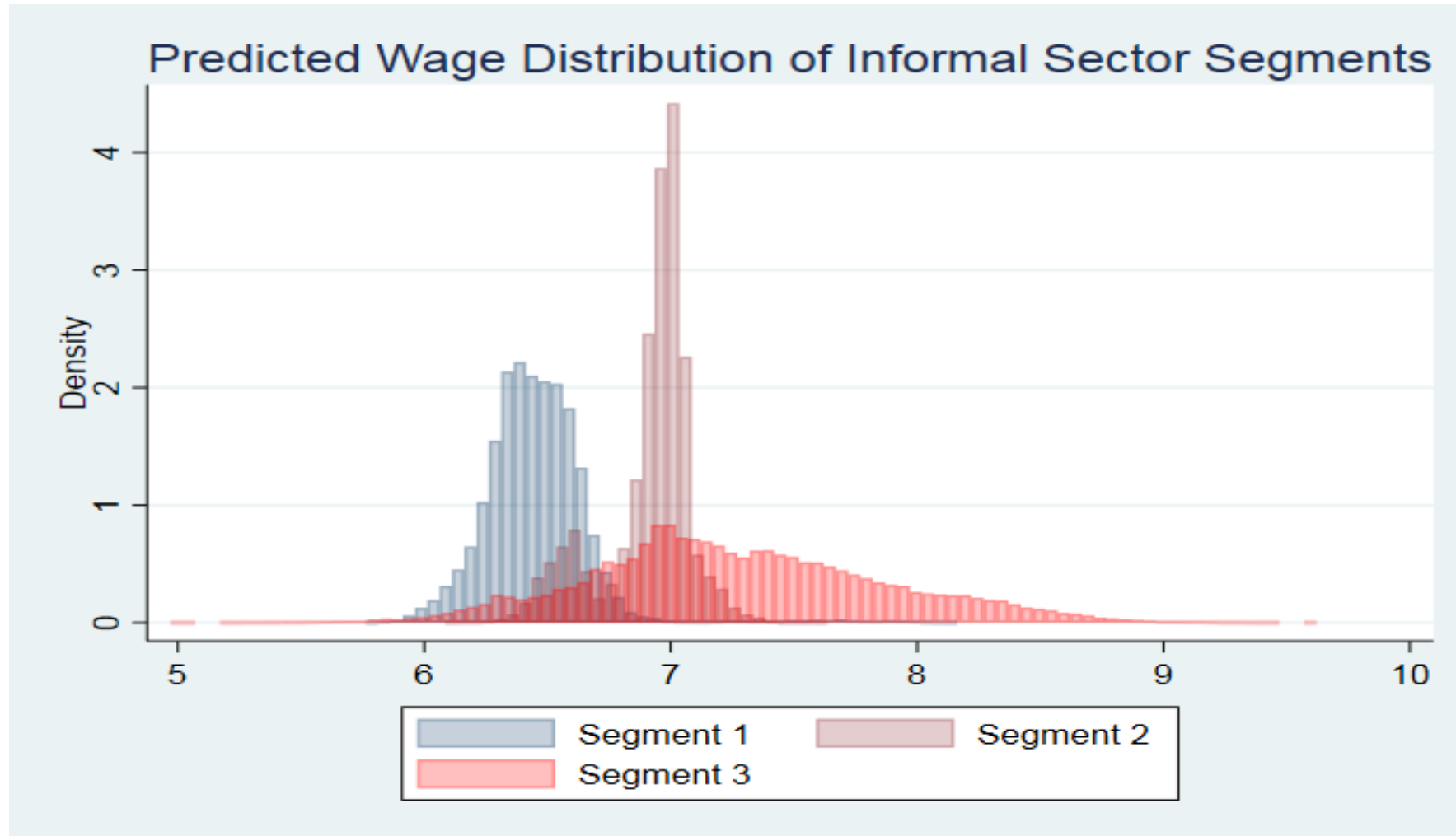
# Results

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

<b>Model</b>	<b>Observations</b>	<b>df</b>	<b>AIC</b>	<b>BIC</b>
<b>fmm1</b>	17,161	19	28867.5	29014.7
<b>fmm2</b>	17,161	39	28063.2	28365.5
<b>fmm3</b>	17,161	59	26937.2	27394.5



# Segmentation



# Results: Voluntary Choice or entry barrier restriction?

**Table 7: Last resort or voluntary choice**

	Linear Prediction	Predicted Posterior Probability
<b>Formal Sector</b>	0.241	0.362
<b>IF Segment 1</b>	0.062	0.04
<b>IF Segment 2</b>	0.354	0.195
<b>IF Segment 3</b>	0.343	0.403

# Conclusions

- Segmentation- Informal Sector is heterogeneous
- Different Wage equation in each segment of informal sector
- Voluntarily Choice in upper segment

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- Thank You