

Inequality of Opportunity in Informal Employment in India

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June 4 , 2019

Overview

- 1 Informality in the Indian Context
 - Background and Motivation
- 2 Inequality of Opportunity
 - Literature Review
 - Methodology
- 3 Data and Methodology
- 4 Results
- 5 Limitations and Work ahead
- 6 Appendix
 - Non-Parametric Analysis using GINI index
 - Regression Results
 - Shapley Decomposition Results

Informality in the Indian Context

Background and Motivation

- Informal employment in India constitutes about 70-90 percent of workforce.
- Definition: Informal Employment (**Chen, 2005; 2012**):

Wage Employment	Self Employed
Employees of informal enterprises Casual or day labourers	Employers in informal enterprises Own account workers in informal enterprises
Temporary or part-time workers Paid domestic workers	Contributing family workers Members of informal producer's cooperatives
Contract workers Unregistered or undeclared workers	

- Summary statistics:

Employment type	Workforce share	Mean earnings	Earnings share	Inequality MLD
Formal	13.1	125902	33.5	0.36
Informal	86.9	37729	66.5	0.68

Table: Own calculations using IHDS-II

- Between-Group inequality: About 20 percent of total inequality.

- Summary statistics for informal employment:

Employment type	Workforce share	Mean earnings	Earnings share	Inequality MLD
Waged	70.3	30142	56.2	0.55
Self-Employed	20.1	65433	34.9	0.91
Waged and Self Employed	9.5	35112	8.8	0.57

Table: Own calculations using IHDS-II

Inequality of Opportunity

- Inequality in the distribution of particular outcomes is not the appropriate yardstick for assessing the fairness of a given allocation or social system. **(Dworkin, 1981; Arneson, 1989; Cohen, 1989; Sen, 1985).**
- **Roemer(1998)** offered a formalization of unequal opportunities. Determinants of a person's advantage (outcome) into *circumstances* and *efforts*.
- Economic inequalities due to factors beyond the individual responsibility are inequitable, and should be compensated by society. **(Peragine, 2004)**
- Policy Relevance. **(World Bank, 2006; Bourguignon et al., 2007)**

Research Objective

- Assess the inequality of opportunity in informal employment in India.
- Findings: *Gender, Region and State zone*

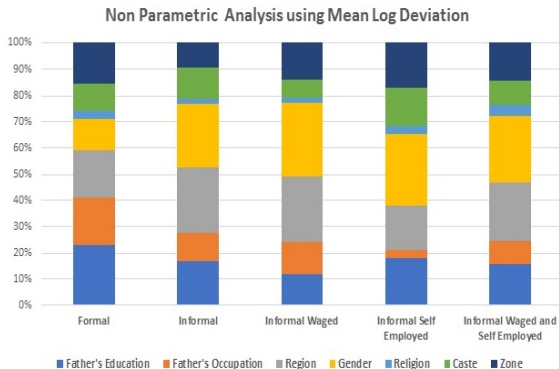
Data

- India Human Development Survey (IHDS-II) :
Nationally representative, multi-topic survey of 41,554 households.
- Jointly organized by University of Maryland and the National Council of Applied Economic Research (NCAER).
- Data used: Individual level.
- Outcome variable: Earnings.
- Circumstances: Father's education, Father's occupation, Gender, Zones (based on states), Region, Religion, Caste

Methodology

- Ex-ante approach (**Van de Gaer,1993; Checchi and Peragine, 2010**).
- Non Parametric (**Checchi and Peragine, 2010**):
 - ▶ Does not posit any a priori relationship between the circumstance variable and outcome.
 - ▶ Disadvantage: Does not consider multiple circumstances simultaneously.
- Parametric (**Bourguignon et al.,2007**):
 - ▶ Estimation of regression model of the outcome variable on several circumstance variables.
 - ▶ Controls for other circumstances.

Non-Parametric Analysis



- Formal Employment: Father's education, Father's Occupation, Zone.
- Informal Employment: Gender, Region.

Parametric Analysis

- **Bourguignon et al. (2007):**

$$Y_i = \alpha C_i + \beta E_i + u_i$$

C: Vector of circumstances.

E: Vector of responsibility variables.

u: Random component captures variation due to unobserved determinants.

α and β : Effect of circumstances and efforts

- $E_i = H C_i + v_i$

H: Matrix of Coefficient that capture effect of circumstances on effort.

- Reduced form: $Y_i = \alpha C_i + \beta C_i H + v_i \beta + u_i$

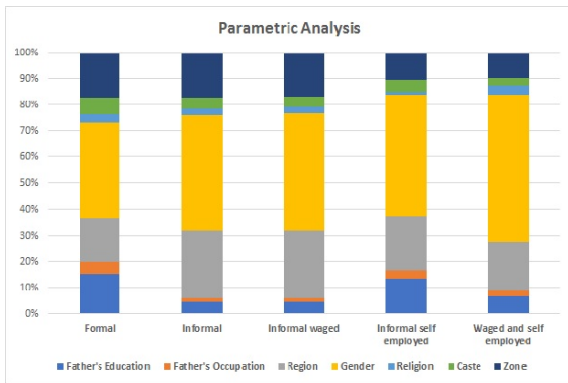
- Estimated by OLS as:

$$Y_i = \phi C_i + \epsilon_i$$

where, $\phi = \alpha + \beta H$

and $\epsilon_i = v_i \beta + u_i$

- Explained variability decomposed by groups using Shapley decomposition.
- Lower bound of inequality of opportunity.



- Formal Employment: Gender, Father's education.
- Informal Employment: Gender, Region, Zone.

Limitations

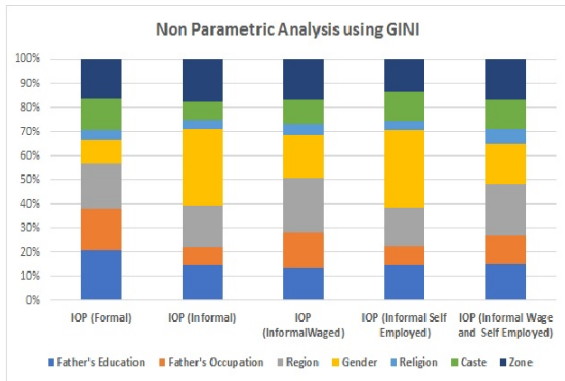
- Formal enterprises data not available.
- Ex post analysis: Difficult to capture effort.

Work ahead

- Closer inspection of circumstance variables.
- For instance, extent of variation observed due to geographical location.

Thank you.

Non-Parametric Analysis using GINI index



- Formal Employment: Father's education, Father's Occupation, Zone.
- Informal Employment: Gender, Region.

Regression Results

Table: Dependent Variable: Earnings

Variable	Formal Employment	Informal Employment
Gender	-0.736***	-1.011***
Father's Education(1)	0.199**	0.112***
Father's Education(2)	0.286***	0.267***
Father's Education(3)	0.404*	-0.654***
Father's Education(4)	0.497***	0.386***
Region(1)	-0.0686**	-0.401***
Region(2)	-0.410***	-0.940***
Region(3)	-0.512***	-1.110***
Religion (1)	-0.261***	0.0763***

Table: Dependent Variable: Earnings

Variable	Formal Employment	Informal Employment
Religion(2)	0.0819	0.114***
Religion(3)	-0.0753	0.244***
Religion(4)	0.0618	0.0610***
Religion(5)	0.100	0.214***
Religion(6)	-0.0635	0.304***
Religion(7)	0.426	-0.554***
Religion(8)	1.016*	0.955***
Caste(1)	-0.0588	-0.00674***
Caste(2)	-0.225***	-0.119***
Caste(3)	-0.260***	-0.0439***
Caste(4)	-0.0256	-0.330***
Caste(5)	0.193	-0.318***

Table: Dependent Variable: Earnings

Variable	Formal Employment	Informal Employment
Father's Occupation(1)	0.0319	0.167***
Father's Occupation(2)	0.182***	0.162***
Father's Occupation(3)	-0.0909	0.147***
Zone(1)	-0.424***	-0.418***
Zone(2)	-0.0406	0.0440***
Zone(3)	-0.230***	-0.251***
Zone(4)	-0.137***	0.104***
Zone(5)	0.378***	0.0288***
Constant	11.90***	11.21***
N	151,220,399	1,048,264,476
R ²	0.254	0.353

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Shapley Decomposition Results

Variable	Formal	Informal	Informal Waged	Informal Self	Waged self
Gender	39.0835	45.7719	46.5951	48.8718	57.6389
Father's Education	16.2806	4.7425	4.7076	14.2008	7.0963
Region	17.93	27.497	26.8874	21.718	19.5585
Religion	3.1604	2.4354	2.6216	0.8273	3.5648
Father's Occupation	5.1102	1.4959	1.6942	3.4381	2.1867
Zone	18.4352	18.0571	17.494	10.944	9.9548
Caste	6.9208	4.5464	4.0519	4.982	3.116
Overall R2	0.23524	0.3527	0.36414	0.28308	0.30769