

**Dynamics of Income Inequality
and Employment Characteristics
under Different Growth Regimes:
Insights from
Household Level Survey Data in India**

by

Panchanan Das, University of Calcutta, India

discussed by

Marek Kosny, Wroclaw University of Economics, Poland

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Motivation and background

- ▶ In low or lower middle income countries, a very small part of the workforce is absorbed in the high productive formal sector. Significant share of the workers are vulnerable and forced to accept less productive informal jobs.
- ▶ The objective of this study is to explore the distributional issues of growth since the early 1980s by taking labour market characteristics into account with micro level information from employment and unemployment survey in India.

Main finding

- ▶ The study observes positive effect of education on within-groups inequality. However, the impact differs significantly across different types of workers with different education levels. The differences across quantiles are substantially higher for workers with graduate and above than for less educated workers.

Data

- ▶ Unit level data from 38th round, 50th round, 61st round and 68th round survey on employment and unemployment situation in India for the period 1983, 1993-94, 2004-05 and 2011-12, provided by the NSSO.
- ▶ Per capita monthly consumption expenditure on all goods and services is used as a proxy for income per person within a household. Wages are given in cash and kind, both in value terms, on weekly basis for persons by their usual activity status of employment.
- ▶ This study gathers, among others, the information about education and demographic characteristics of household members, weekly time disposition, and their main and secondary job activities.

Structural transformation of employment and income

Rural India	Employment share				Income* share			
	1983	1994	2005	2012	1983	1994	2005	2012
Self-employed in agriculture	55	47	44	41	53	51	46	42
Self-employed in non-agriculture	10	13	17	17	10	14	18	18
Regular wage earning				9				12
Casual labour in agriculture	25	24	22	17	27	19	17	14
Casual labour in non-agriculture	5	7	10	13	4	6	9	11
Others	5	9	8	3	6	11	10	3
Urban India								
Self-employed	45	43	48	46	44	41	45	44
Regular wage earning	0	41	37	37	0	47	44	44
Casual labour	0	12	11	13	0	8	7	8
Others	55	4	3	4	56	4	4	5

* Monthly consumption expenditure per capita is used as a proxy for income

Distribution of wage workers by level of education

Education level	1983	1994	2005	2012
Not literate	49.2	36.8	28.0	20.6
Below primary	23.0	11.1	9.8	8.2
Primary	12.2	12.1	12.7	11.2
Middle	10.8	13.5	16.9	17.1
Secondary	0.3	17.0*	19.3*	25.3*
Graduate and above	4.5	9.5	13.4	17.6

* Includes both secondary and higher secondary levels

Gini index of monthly per capita consumption expenditure by household status of employment in rural India

Employment status	1983	1994	2005	2012
self-employed in agriculture	0.42	0.27	0.24	0.28
Self-employed in non-agriculture	0.41	0.27	0.26	0.28
Regular wage earners				0.29
Casual labour in agriculture	0.53	0.24	0.2	0.24
Casual labour in non-agriculture	0.34	0.26	0.23	0.25
Others	0.47	0.3	0.31	0.33
Within group inequality	0.16	0.08	0.07	0.07
Between group inequality	0.04	0.07	0.08	0.07
Overlapping group inequality	0.25	0.12	0.11	0.14
All	0.45	0.28	0.26	0.28

Gini index of monthly per capita consumption expenditure by household status of employment in urban India

	1983	1994	2005	2012
Self-employed	0.38	0.32	0.34	0.35
Regular wage earning		0.31	0.35	0.35
Casual labour		0.24	0.21	0.26
Others	0.39	0.34	0.40	0.37
Within group inequality	0.19	0.12	0.13	0.13
Between group inequality	0.02	0.08	0.1	0.1
Overlapping group inequality	0.17	0.12	0.12	0.13
All	0.39	0.33	0.35	0.36

Gini index of monthly per capita **consumption expenditure** among working age people by education

Education level	1983	1994	2005	2012
Not literate	0.46	0.30	0.26	0.30
Below primary	0.45	0.30	0.28	0.31
Primary	0.47	0.30	0.28	0.30
Middle	0.45	0.30	0.44	0.31
Secondary	0.40	0.33	0.50	0.33
Graduate and above	0.34	0.37	0.35	0.36
All workers	0.47	0.34	0.36	0.34
Within group	0.28	0.13	0.11	0.10
Between groups	0.17	0.55	0.78	0.55
Overlapping groups	0.55	0.31	0.10	0.35

Gini index of weekly **wages** by education

Education level	1983	1994	2005	2012
Not literate	0.83	0.66	0.48	0.45
Below primary	0.83	0.71	0.51	0.48
Primary	0.84	0.71	0.50	0.48
Middle	0.73	0.70	0.48	0.49
Secondary	0.76	0.64	0.46	0.47
Graduate and above	0.83	0.51	0.38	0.40
All workers	0.84	0.73	0.53	0.51
Within group	0.21	0.12	0.10	0.10
Between groups	0.35	0.54	0.60	0.56
Overlapping groups	0.44	0.34	0.30	0.33

Further analysis

- ▶ Quantile regression measures the effects of the predictors at different points of the distribution. Differences in quantile response can be used to measure inequality within groups.
- ▶ In this study, the types of employment and education level are taken as the major predictors of the response variable earnings
- ▶ To identify the factors influencing the observed inequality, conditional earnings at quantiles 0.10, 0.25, 0.50, 0.75 and 0.90 were taken as endogenous variable.

Econometric model

The regression model at quantile p ($p = 0.10, 0.25, 0.50, 0.75, 0.90$) is specified as:

$$y = \beta_0^p + \sum_i \beta_{1i}^p D_{year} + \beta_2^p D_F + \beta_3^p D_R + \sum_j \beta_{4j}^p D_{ES} + \beta_5^p age + \beta_6^p D_{TE} \\ + \sum_k \gamma_k^p D_{edu} + \sum_{l,j} \eta_{l,j}^p D_{year} D_{ES} + \sum_{i,k} \eta_{i,k}^p D_{year} D_{edu} + \varepsilon^p$$

where D_{year} , year = 1983, 2005, 2012, is a time dummy measuring the effect over time, D_F is a female dummy used for detecting gender gap in earnings, D_R is a dummy variable for capturing rural urban difference, D_{ES} is used to capture earnings difference for workers with different employment status, age is used as a proxy for work experience, D_{TE} is a dummy for workers with technical education, D_{edu} denotes education dummy.

Quantile regression estimates

Real wage	Q ₁₀	Q ₂₅	Q ₅₀	Q ₇₅	Q ₉₀
Intercept	50.89***	96.79***	173.67***	268.00***	442.55***
age	0.57***	1.11***	2.27***	4.53***	5.95***
D_1983	-4.52	-9.35	-28.92	-51.08	-96.65*
D_2004	94.72***	154.69***	254.59***	588.66***	1238.74***
D_2011	181.75***	289.56***	425.79***	809.44***	1812.05***
D_rural	-33.02***	-58.88***	-103.72***	-171.45***	-246.12***
D_female	-23.39***	-38.52***	-56.35***	-73.97***	-95.35***
D_tech_edu	60.24***	180.00***	330.61***	508.11***	749.15***
D_below_primary	9.56***	16.78***	31.37***	53.37***	66.56***
D_primary	13.07***	21.31***	43.42***	81.66***	108.41***
D_middle	25.40***	46.39***	94.44***	193.72***	217.97***
D_secondary	70.61***	162.04***	349.28***	456.38***	521.93***
D_graduate	151.63***	530.15***	777.76***	1032.14***	1359.15***
D_regular_wage	80.85***	146.29***	222.94***	277.10***	299.61***
D_casual_wage	40.60***	46.61***	34.01***	5.62	-45.63*
Pseudo R ²	0.0634	0.1125	0.2025	0.2943	0.3532

Conclusions

- ▶ While within group inequality declined, the between group inequality increased markedly during the 1990s and became stagnant thereafter in the rural economy.
- ▶ Inequality was higher in the urban economy as compared to the countryside.
- ▶ Wage inequality was the highest among workers with education at middle school level and the lowest among graduate or post-graduate workers in 2012. Wage inequality declined but at different rates for different groups by education.
- ▶ Wage distribution became more unequal because of education and the effect was escalating over time.

Conclusions

- ▶ „The first three decades of planning (1950s to 1970s) in India was associated with a marked decrease in inequality that had prevailed during the colonial period. The situation, however, changed dramatically in the early 1980s, which marked the turning point for the dynamics of income inequality in India and indeed across the world. The new economy of the 1980s and 1990s, even as it delivered faster growth on average, ensured higher proportional rates of growth of top incomes as compared to the first three decades of planning. The pro-business policies made more wealth for the upper end while the lower end dropped down further into oblivion increasing the between group inequality.”

Discussion

- ▶ Usage of other measures of inequality, which are additively decomposable, seems to be worth considering. In particular, no information (interpretation) of overlapping component is given.
- ▶ Per capita monthly consumption expenditure on all goods and services is used as a proxy for income. It could be very misleading, especially in the context of inequality. It would be better to name it directly – expenditure.
- ▶ How should we interpret differences in wages inequality and expenditure inequality in Indian context.

Discussion

- ▶ Results concerning inequality should be compared to other countries (level and structure). Especially in the context of changes in consecutive periods.
- ▶ What software was used for calculations?
- ▶ Justification for pooling all four periods in one sample in the regression analysis would be desirable.
- ▶ Interpretation of regression results should be expanded. Especially connections of these results with inequality analysis.

Thank you for the attention!

