INFORMALITY
COMPARING CHINESE AND INDIAN LABOUR MARKETS

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NATURE OF OCCUPATION AND INDUSTRY

- Occupation is what you do at your job, e.g. accountant does accounts, a teacher teaches, a doctor heals and a skilled production worker is a fitter, turner or plumber.

- An industry is where you work, e.g. the accountant can work in a bank or a school or in a rubber factory, a teacher can work in a school, college or university, and a plumber can work in IRMA or in a factory.

THREE PUZZLES: RETURNS TO EDUCATION

- Occupation Impact:
  - Is occupation capturing skill and unobserved ability?
- Sector Choice:
  - When does the Formal Sector rely on years of schooling as a good indicator of unobserved ability?
- Wage quantiles and returns to schooling:
  - Complementarity between ability and education
- India China comparison:
  - Points to unobserved variation in ability perhaps indicating variations in the quality of education at higher schooling levels

WORK FORCE PARTICIPATION

- Workforce: High proportion of economically active population in China (63%) compared to India (43 %)
- Male participation is similar in India-China
- Female participation is exceptionally low in urban India (11.4%), China (54.9%).

EDUCATION
CHINA'S URBAN LABOR FORCE IS MUCH BETTER EDUCATED THAN INDIA'S

	CHINA			INDIA		
	Formal jobs	Informal jobs	All	Formal jobs	Informal jobs	All
Years of Schooling	12.7	10.1	11.5	12.2	7.3	8.0
Illiterate (%)	0	1	0	3	18	16
Primary (%)	2	11	6	4	17	15
Middle (%)	21	47	33	6	20	18
High school (%)	57	38	49	36	34	34
College and above (%)	20	4	12	51	11	16

- Virtually no illiterates in China compared to 16% in India
- Mean years of schooling similar for formal jobs but much lower in India for informal jobs
- Formal jobs dominated by college graduates in India but not China

INFORMALITY

- Informality Definitions (ILO)
  - Informal Sector: Persons working with an unregistered enterprise
  - Informal Employment: Wage employees who receive standard social protection from the employer
- Data: workers surveys in 2010
  - China: 6 large cities—Shanghai, Fuzhou, Guangzhou, Wuhan, Shenyang, Xian
    - Sample 11041 Formal Sector 7570 Informal Sector 3471
  - India: Delhi and Ranchi
    - Sample 4126 Formal Sector 1245 Informal Sector 2881

INFORMAL SECTOR AND INFORMAL EMPLOYMENT

- **Informal Sector:**
  - < 1/4th workforce in China is in informal sector,
  - > 2/3rd workforce in India is in informal sector.
  - Hardly any gender difference.

- **Informal Employment:**
  - Share of informal employment > Share of informal sector in India-China
  - Predominance of informally employed in India.

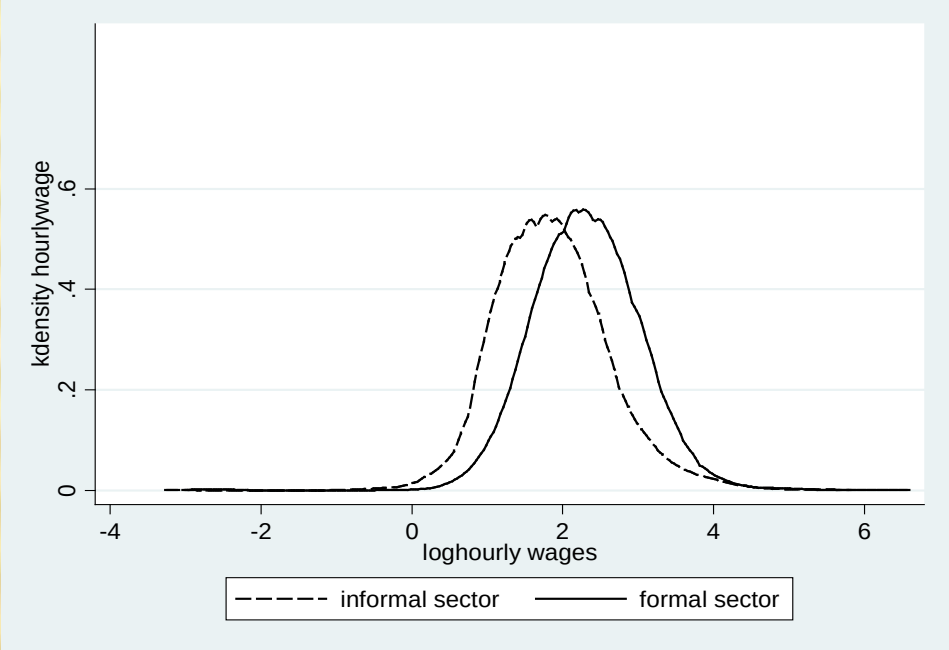
Intersection of Informal Sector and Informal Employment

Sector/ Production unit	India			China		
	Employment					
	Total	Informal	Formal	Total	Informal	Formal
PERSON						
Formal sector	32.1	20.8	11.3	78.0	12.6	**65.4**
Informal sector	67.9	**65.9**	2.0	22.0	12.9	9.2
Total Non-agricultural	100	86.65	13.35	100	25.48	74.52

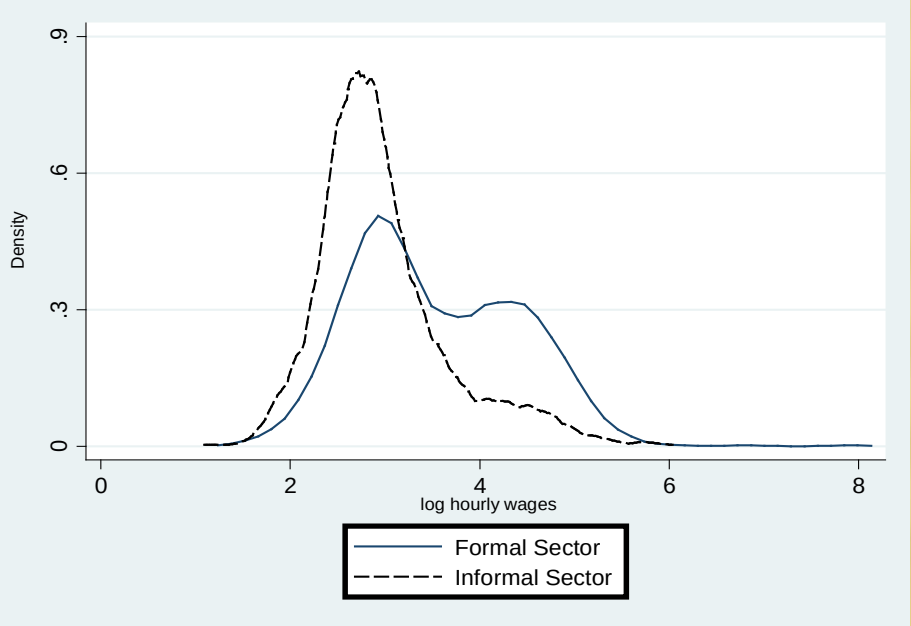
- In India ' Informal Sector-Informal Employment ' is higher.
- In China 'Formal Sector-Formal Employment' is higher
- Informalisation of workforce is higher in India.

WAGE DISTRIBUTION IN FORMAL AND INFORMAL SECTORS

CHINA



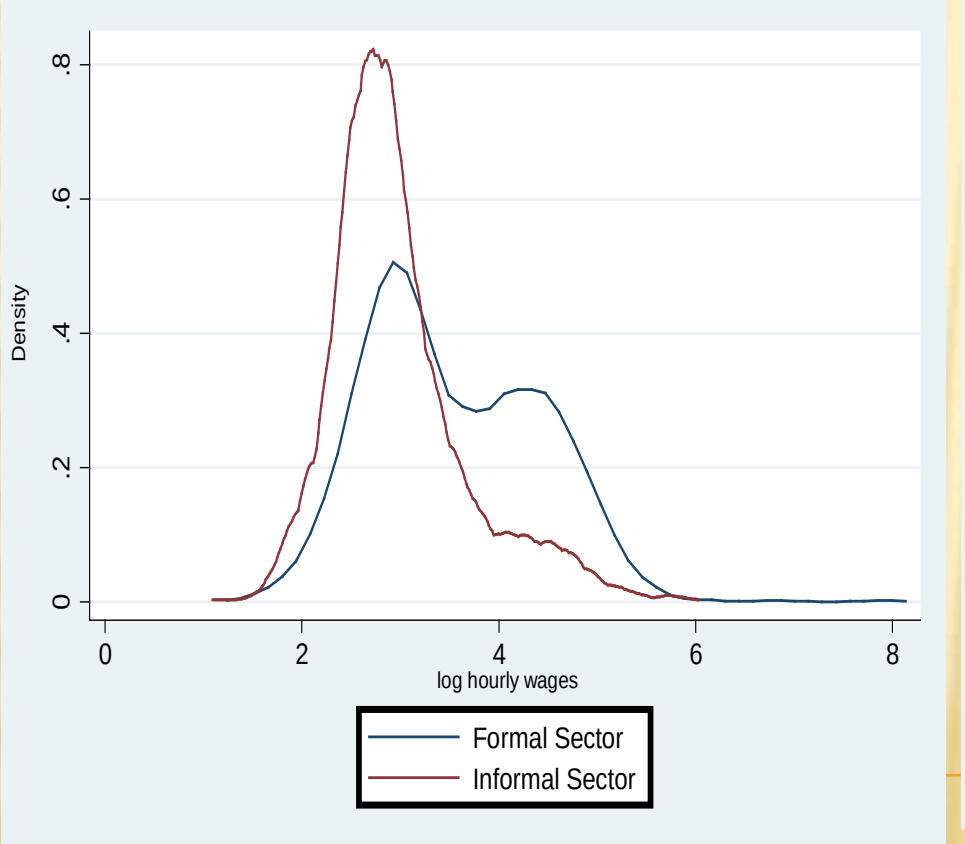
INDIA



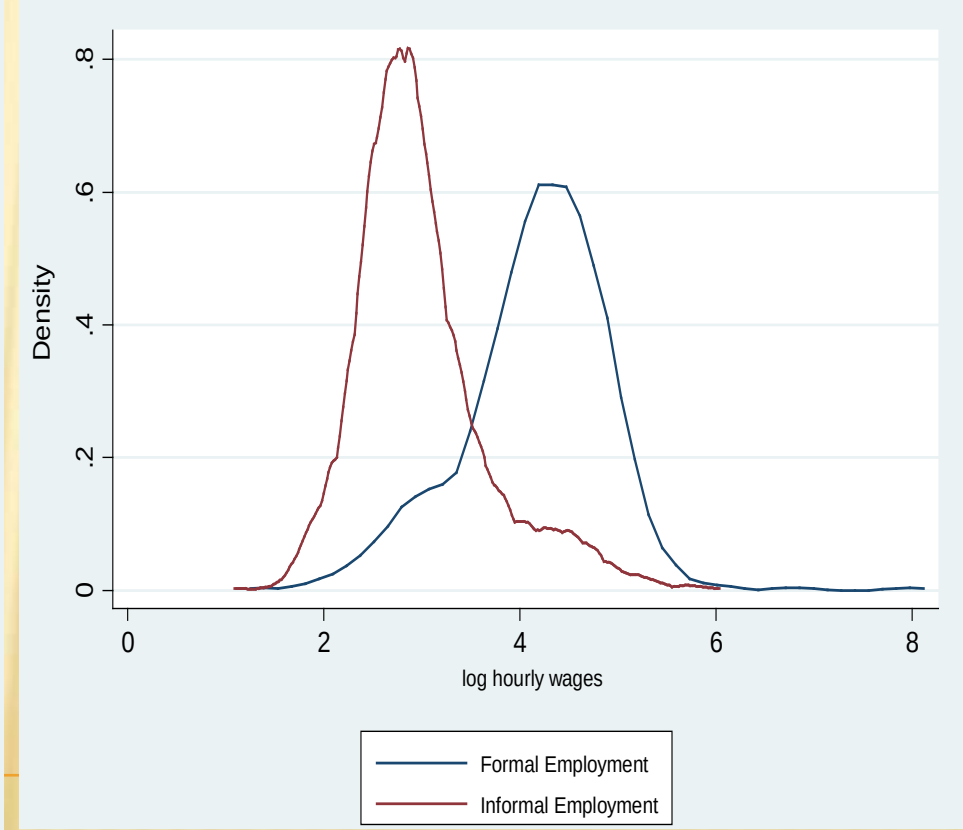
In India, formal employment has bimodal wage distribution unlike China

HETEROGENEITY IN EARNINGS, INDIA : KERNEL DENSITY CURVES (LOG HOURLY WAGES)

IN FORMAL AND INFORMAL SECTOR

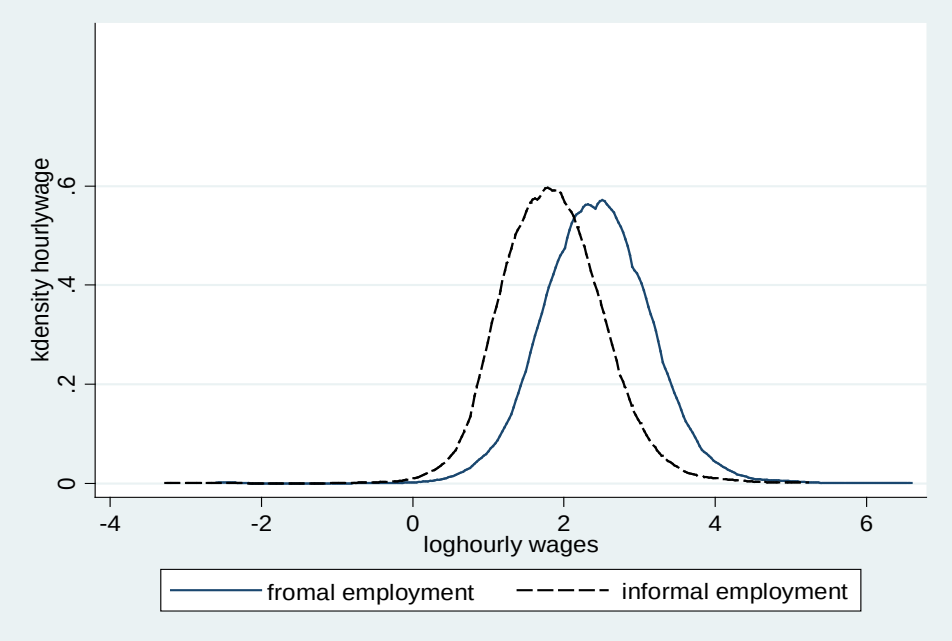


FOR FORMAL AND INFORMAL EMPLOYMENT

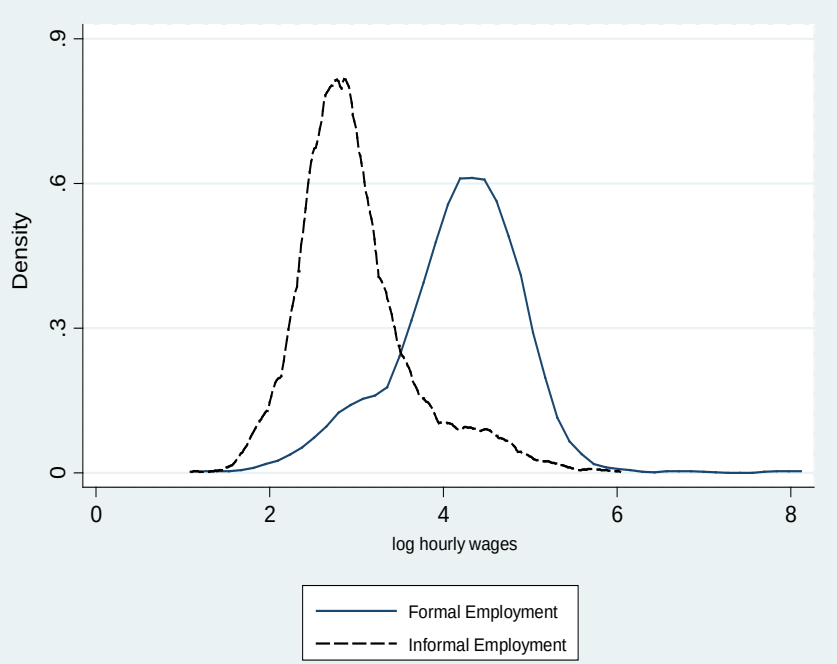


THE FORMAL-INFORMAL WAGE GAP IS MUCH GREATER IN INDIA THAN CHINA

CHINA



INDIA



China: Formal hourly wages are 84% greater than informal wages

India: Formal hourly wages are 217% greater than informal wages

METHODOLOGY 1: SELECTIVITY CORRECTED OLS

- We estimate Mincerian earnings equation only for workers,

$$Log\ (hourly\ wage)_i = X_i B + e_i \quad \text{----------(1)}$$

Which may give bias and inconsistent results.

- To correct the selectivity problem we estimate Heckman selectivity correction model

$$P^* = Q_i B + £_i \quad \text{----------(2)}$$

$$Log(hourly\ wage)_i = X_i B + \lambda_i + €_i \quad \text{----------(3)}$$

Equation (2) is the workforce participation equation from which we calculate inverse Mills Ratio and include in equation(1)

P^*= any unobservable aspect of being a worker B is the vector of coefficients of interest

METHODOLOGY 2: SECTOR CHOICE-SWITCHING REGRESSION

- To estimate sector wise returns we run switching regression
- The switching regression model consists of three equations

$$FS^* = X_i \alpha + \beta Z_i + U_i \text{---------(4)}$$

$$\text{Log (hourly wage)} F_i = X_{1i} A_1 + \acute{Y}_1 M_{1i} + U_{1i} \text{ ---------(5)}$$

$$\text{Log (hourly wage)}_{Ii} = X_{2i} A_2 + \acute{Y}_2 M_{2i} + U_{2i} \text{ ---------(6)}$$

Eq. (4) : Sector choice equation

Eq.(5) : Mincerian wage equation of Formal sector

Eq.(6) : Mincerian wage equation of Informal sector

METHODOLOGY 3: QUANTILE REGRESSION

- Quantile regression, to estimate returns to education across the earning distribution
- Inter Quantile regression to test whether the returns in different Quantile are significantly different from each other.

RESULTS
1. RETURNS TO EDUCATION ARE HIGHER IN CHINA THAN IN INDIA

	CHINA	INDIA
Years of schooling	0.107***	0.080***
Illiterate	-0.713***	-0.155***
Primary school	-0.210***	-0.0548
High school	0.329***	0.298***
College and above	0.855***	1.188***

Notes: From regressions of log hourly wage on years of schooling or education level dummies (reference category is middle school), experience, experience squared, city dummies, sex, and inverse Mill's ratio from Heckman selection model which includes dummies for having children below 16 and elderly greater than 60 in the household.

*Exception is that returns to college education much higher in India

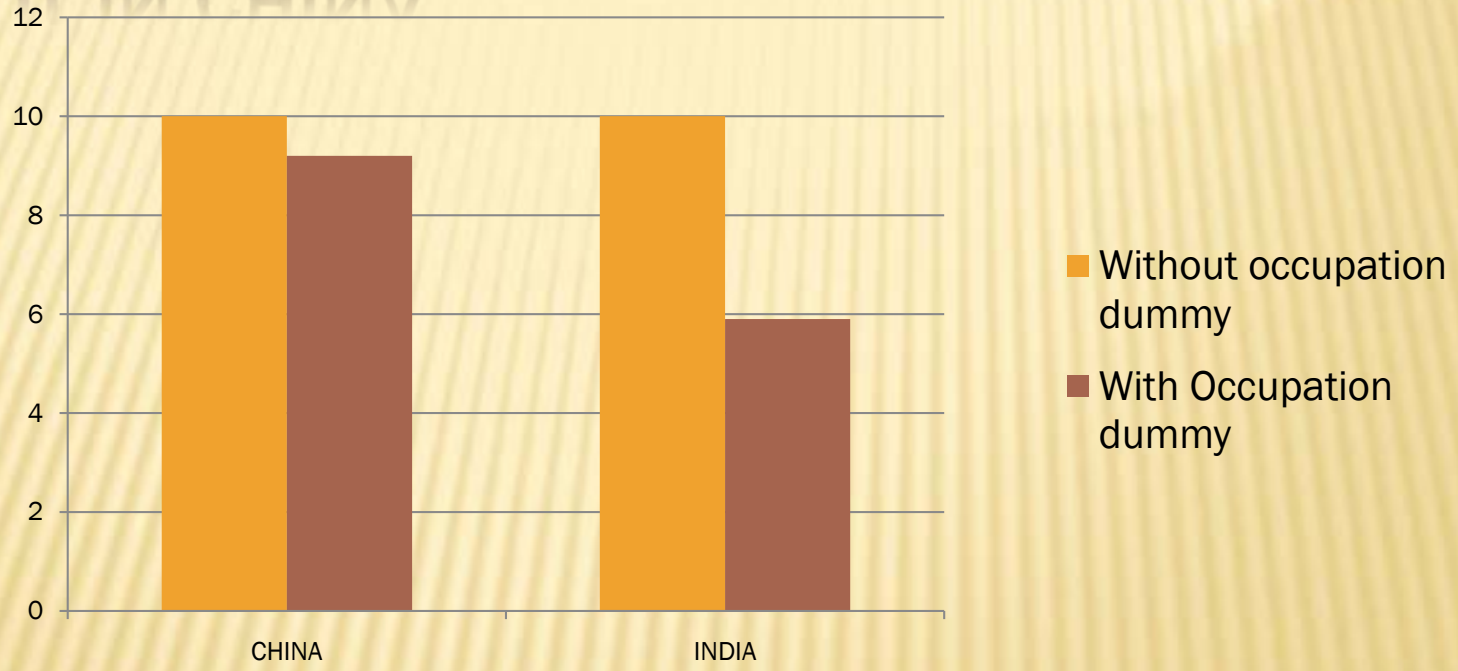
2. IN BOTH COUNTRIES, RETURNS TO EDUCATION ARE GREATER IN FORMAL JOBS THAN INFORMAL JOBS

	China		India	
	Formal	Informal	Formal	Informal
Years of education	0.100***	0.039***	0.103***	0.0499***
Illiterate	-0.269	-0.245***	-0.178	-0.105***
Primary	-0.224***	-0.047	-0.0436	-0.0364
Secondary and HS/Diploma	0.295***	0.044	0.434***	0.209***
Graduate and above	0.734***	0.317***	1.039***	0.950***
Observations	5870	4973	554	3,572

Notes: From Mincer regressions and switching regression model, where job type is identified by dummy variable for whether household has another member with job in formal sector.

Within formal sector and informal sector, returns to education are higher in India than In China, in contrast to pooled regression results

3. RETURNS TO SCHOOLING YEARS IN FORMAL SECTOR ARE SENSITIVE TO CONTROLLING FOR OCCUPATION IN INDIA BUT NOT IN CHINA

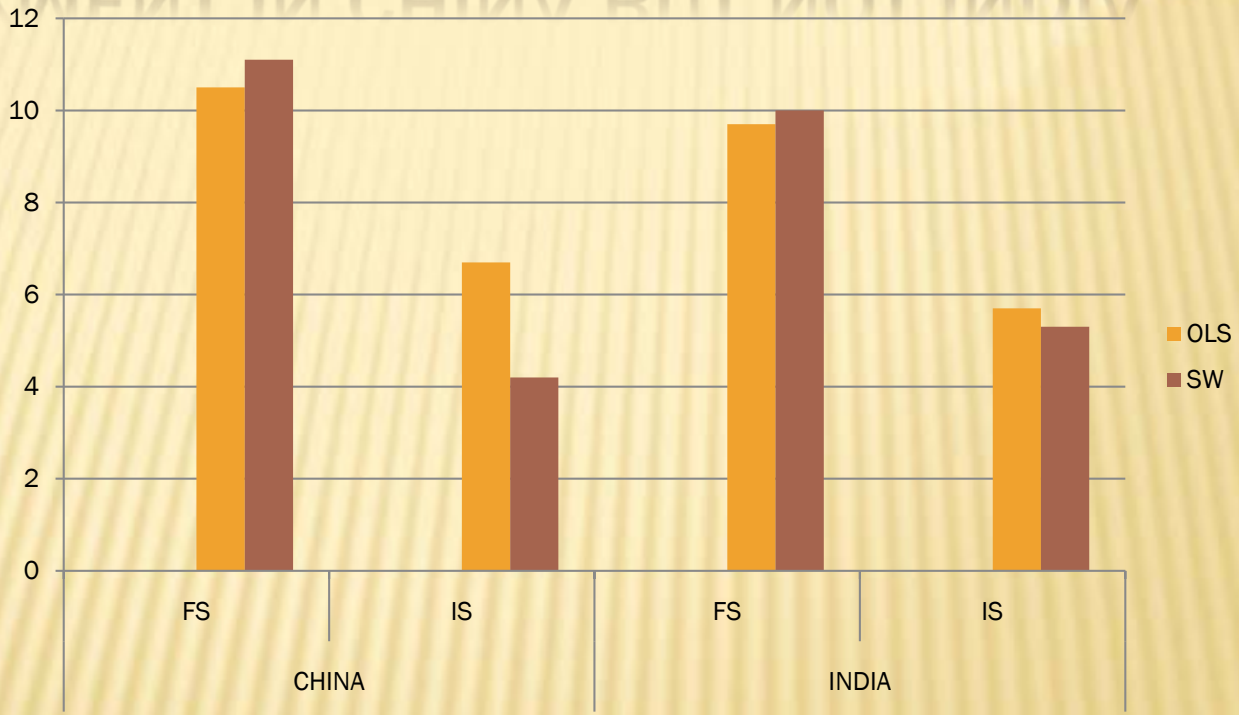


Notes: Formal Sector from Mincer specification and switching regression model

3. (CONT'D) OCCUPATION DUMMY:

- India:
  - Occupation is picking up the characteristics of education in the Formal Sector
  - Occupation is capturing skill, unobserved ability and quality of schooling, which are important in FS
- China:
  - Education is a better predictor of skill, unobserved ability and addition of occupation dummy makes no difference to returns to education.

4. CONTROLLING FOR SECTOR SELECTIVITY VIA SWITCHING REGRESSION MODEL REDUCES RETURNS TO SCHOOLING YEARS IN INFORMAL EMPLOYMENT IN CHINA BUT NOT INDIA



Notes: Mincer specification OLS and switching regression model (without occupation dummy)

4. (cont'd) SECTOR CHOICE

- China:
  - Higher years of schooling better identifies school quality and unobserved ability. Better educated move to the formal sector.
- India:
  - Higher years of schooling not a good indicator of ability as school quality varies.
  - Sector choice not making any difference to returns
  - Persons with higher levels of education can remain in the informal sector

5. RETURNS TO SCHOOLING YEARS IS STRONGLY POSITIVELY CORRELATED WITH WAGE QUANTILE IN INDIA BUT SLIGHTLY NEGATIVE IN CHINA

	q10	q25	q50	q75	q90
CHINA	0.103***	0.104***	0.108***	0.099***	0.089***
INDIA	0.035***	0.049***	0.073***	0.095***	0.099***
CHINA					
Formal sector	0.105***	0.107***	0.115***	0.106***	0.096***
Informal Sector	0.039***	0.041***	0.042***	0.047***	0.048***
INDIA					
Formal sector	0.062***	0.089***	0.102***	0.105***	0.097***
Informal Sector	0.020***	0.030***	0.041***	0.068***	0.080***

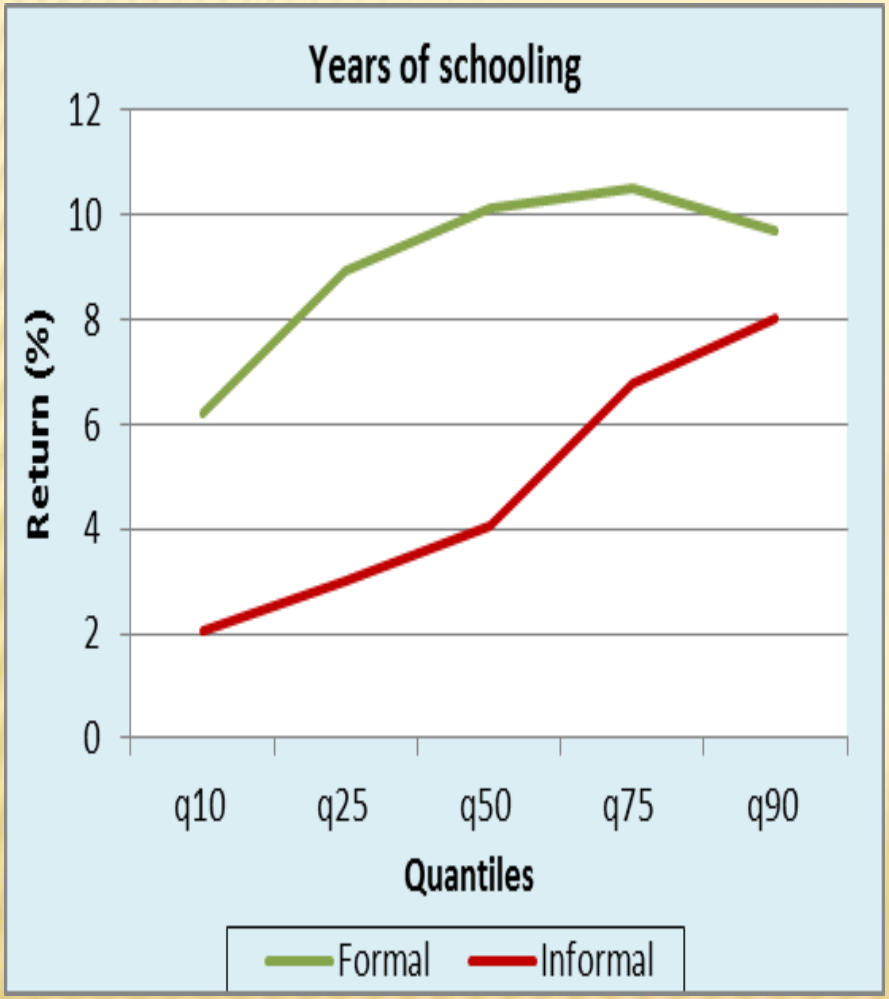
Note: Returns to a year of schooling from quantile regressions using Mincer specification

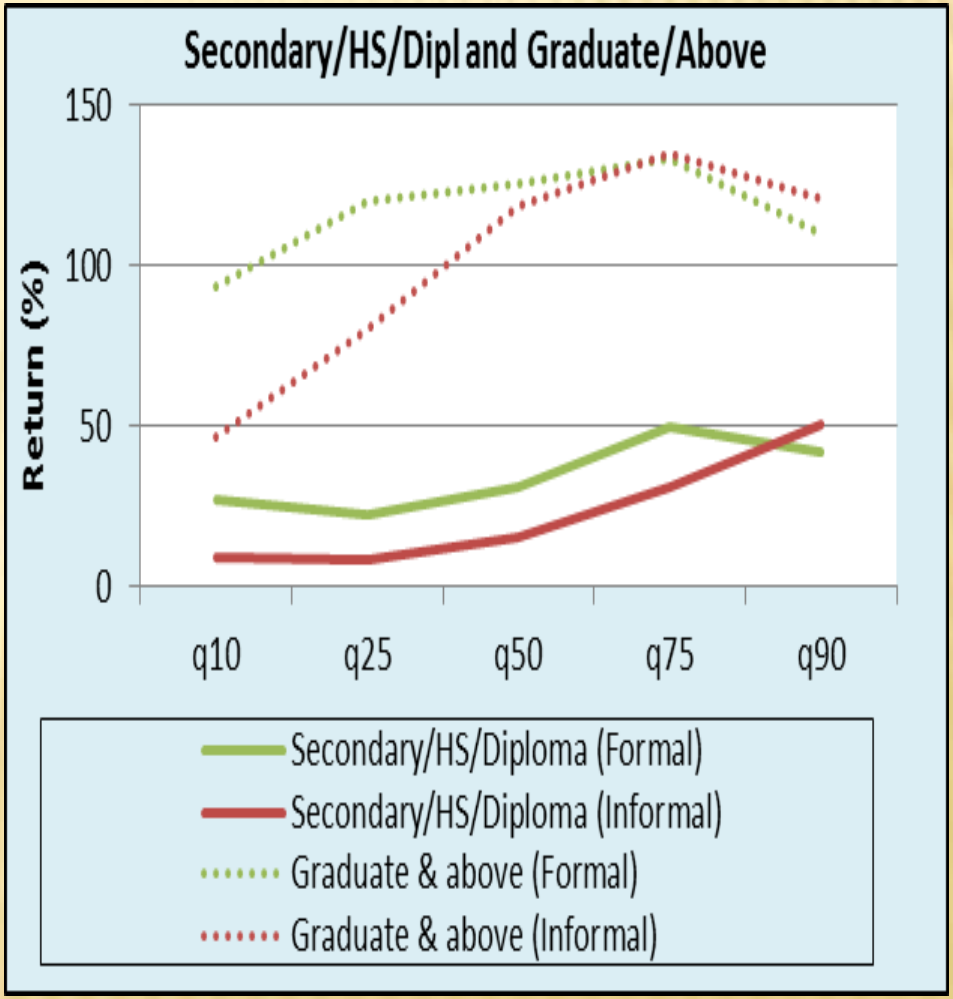
5. (CONT'D) QUANTILES AND RETURNS

- **Common result for developed countries:** Slightly positive relationship between wage quantile and returns to education
  - India is stronger positive outlier
  - China is negative outlier
- India: Driven entirely by strong positive relationship between wage quantile and returns to education in informal sector

- **Possible explanations** for positive relationship between wage quantile and returns to schooling:
  - Over-qualification of workers in low-paying jobs, returns low (India)
  - Complementarity between ability and education (exists in China, not India)
  - Non-observed variation in the quality of education at higher schooling levels (India)

INDIA: RATES OF RETURNS TO EDUCATION ACROSS WAGE QUANTILES





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DETERMINANTS OF RETURNS: THEORY

- Determinants of returns to education
  - Relative demand and relative supply
  - Elasticity of substitution for worker with different skills
- In well-integrated labor markets, returns to education converge for different labor segments
- If there is heterogeneity in returns to education, especially with respect to ability
- Returns to education becomes a key driver of inequality

EXPLANATION OF PUZZLE_1/2: VARIATION IN RETURNS BY SECTOR AND OCCUPATION

- There are education premiums in India China, how is it determined?
- In fully integrated labour markets, through demand and supply: E.g. China and NOT India
- Surplus labour in India: Returns are not fully determined by the market
  - Employers divide workers by informality (sector) or occupation to better capture ability which is not reflected in years of education.

EXPLANATION OF PUZZLE_3: VARIATION IN RETURNS ACROSS WAGE DISTRIBUTION

- Years of education should be a good proxy for skill and ability. Then education will be rewarded similarly across the income distribution even in the informal sector.
- If not, employer uses other indicators of quality of education or ability
  - **Proxy used: type of educational institution.**
- Education Policy: Improve quality of education in schools, colleges, professional education
  - **through a better regulatory environment**
  - **Or incentivizing good educational institutions, for example those that have 100 percent placement.**

FINAL THOUGHTS

- Rapid industrialization and robust labor demand has facilitated more positive labor market outcomes in China than India
  - More formalization, more voluntary labor mobility, less segmentation
  - China avoided growth-inhibiting regulations
- High educational attainment in China has supported industrialization and led to more inclusive growth and less segmentation

THANK YOU