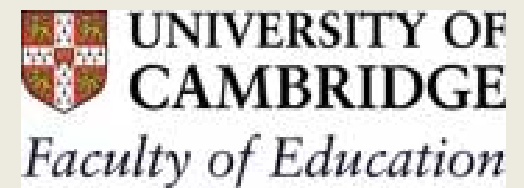


# Labour Market Outcomes of Education & Cognitive Skills

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# Approach

Education and cognitive skills may improve labour market outcomes in two ways.

1. Via entry into more lucrative employment status.
2. Conditional on employment status, by increasing earnings within each occupation.

The relationship between years of education (or cog. skills) on both employment status and earnings is estimated.

# Objectives

- To compare the impact of education and cognitive skills on employment status of males and females in urban and rural areas.
- To examine the shape of the education-earnings relationship in different activities.
- To estimate the returns to literacy and numeracy skills and knowing 'English' in the wage work.

# What's New

- Literacy and Numeracy tests, and a test of English knowledge were done to measure cognitive skills and their impact on labour market outcomes is estimated.
- Returns to education is usually estimated for wage workers. Here returns to education in Agriculture and Non-Farm Self Employment is also attempted.

# Sample

States and Districts chosen:

Rajasthan: Alwar, Dhaulpur and Pali

M.P.: Dewas, Ratlam and Shajapur.

3 villages and 1 urban ward chosen from each district –  
18 villages and 6 urban ward

A multi-purpose household survey, covering 1000  
households was conducted in 2007 – 700 rural and  
300 urban households.

All members between 15 and 60 years were  
interviewed.

# Employment Status Outcome of Education and Cognitive Skills

Occupational outcome is modelled by means of multinomial logit (MNL) of seven occupational categories on education (cognitive skills).

The occupational categories are

- Regular workers,
- casual workers,
- non-farm self employment,
- agriculture,
- Unpaid family labour,
- unemployed and
- out of labour force.

# Education & Employment Profile

Employment status	Mean years of Education		Average annual earnings (Rs.)	
	Male	Female	Male	Female
OLF	<b>8.8</b>	5.9		
Unemployed	<b>8.4</b>	<b>7.8</b>		
Unpaid Family Labour	<b>8.3</b>	2.0		
Agriculture	5.1	0.2	15464	
Non Farm SE	8.5	5.9	33738	
Casual Worker	5.2	1.3	20561	8522
Regular Worker	<b>8.1</b>	<b>8.8</b>	45517	35064

# Probability of Employment - Rural

## Males

- High probability of the uneducated being in casual work and agriculture but declines sharply with education .
- Steady increase in probability of being in Out of Labour Force and Unpaid Family Labour with education.
- Gentle inverse shape for regular work.

## Females

- High probability of those with low levels of education being in casual work or unpaid family labour but declines with education.
- Monotonous increase in Out of Labour Force with education going up to over 60% for graduates



# Probability of Employment - Urban

## **Males**

- Steady increase in regular work and NFSE with education
- Steep decline in probability of casual work from a high level for uneducated

## **Females**

- Very high level of OLF, but a gentle inverse shape.
- Increase in regular work at higher education levels (after class 10).

## Employment Status Probabilities also depends on job opportunities and social norms

- Rural areas
  - Lack of appropriate employment opportunities for the educated males – reflected through higher OLF, unpaid Family labour and decline in regular work.
  - Restricted employment for females – largely casual labour and unpaid family labour.
- Urban areas
  - More employment opportunities for educated males
  - Females have low work participation with little changes in employment probabilities with education, especially at lower levels of education.

## Cognitive skills and Employment status- similar trend

- Higher test scores reduce the probability of males and females doing casual work – the coefficients are negative and significant.
- Higher test scores increases the probabilities of being in regular work and non-farm self employment.
- English score has stronger influence on employment status compared to literacy and numeracy scores.

# Earnings and Education

- The relationship between years of education (or cog. skills) and earnings is estimated using Mincerian earnings functions
- Dependent variable = log annual earnings.
- Explanatory variables – years of education, age, square of age, dummies for caste, religion, state and urban. For NFSE , log of capital stock was an additional variable and for agriculture , land size and log of capital stock were both included.

## Positive returns in all sectors – but rates depend on other variables.

- Substantial marginal rates of return to education in all types.
- Highest in Non Farm Self Employment; Comparable but lower returns in Agriculture and Wage work.
  - Fixed capital and Land Size have significant impact on earnings in agriculture.
  - Earnings are higher in Rajasthan as compared to MP in NFSE and wage work, but not so in agriculture.
  - Earnings are lower for SC/ST in all activities.
  - Average earnings are lower for females in wage work.

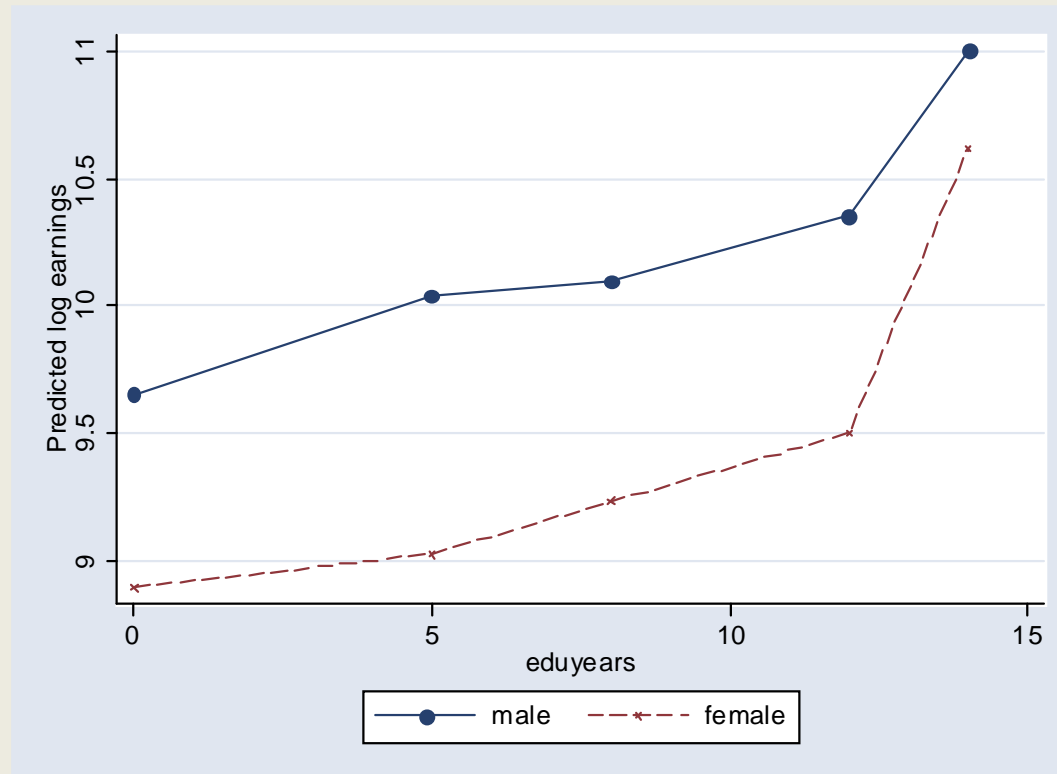
# Findings for Wage Workers

- Earnings are almost insensitive to level of education for casual wage workers. Most of the total returns to education are actually in regular work.
- Rate of Return for female wage workers is higher than males

# Shape of Education-Earnings Curve

- Rates of return to education are higher at higher levels of education in all employment types.
- Among wage workers, convexity is noted for earnings of males, but was particularly strong for females. The returns are primarily for tertiary education, not for lower levels.

# Predicted Earnings of Wage Workers by Education Level





# Returns to Education and Cognitive Skills (Wage Workers)

- Same Mincerian earnings function is used but instead of years of education, test scores are used as a measure of learning.
- When each test score is used separately without years of schooling, they all give significant coefficients.
- In a model where years of schooling is used along with test scores, cognitive skills do not show a significant impact separate from years of education.

# Effects of Schooling and Cognitive Skills

	<b>Male</b>	<b>Female</b>	<b>All</b>
1 SD increase in <b>schooling</b>	28	39	33
1 SD increase in <b>maths</b>	14	13	16
1 SD increase in <b>Literacy</b>	19	15	20
1 SD increase in <b>English</b>	20	26	23

# Summary

- Role of education has a stronger role in determining employment status of males. Uneducated females in rural areas are mostly in casual work and unpaid family labour and withdraw from labour market with education. In urban areas females are largely OLF.
- NFSE ,Agriculture and wage work – all three activities show high rates of return to education.
- Returns to education are convex in all activities, i.e. incremental earning from additional year of education are higher at higher education 'levels'.

# Questions

- Previously primary level of education was expected to give highest returns. But if returns are higher at higher levels of education one needs to question the minimum level of education necessary for our children.
- This result can be explained in wage work as workers with higher levels of education can access more highly paid work. But difficult to understand the processes through which this occurs in agriculture and nonfarm self-employment.