

Demographic Dividend or Deficit: Insights from Data on Indian Labour

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1. Introduction

This paper assesses the veracity of view that the population pyramid of India presents a situation of demographic dividend, youth forming significantly huge proportion of economically active population. It appears the enormity of the projected advantage arising out of population pyramid is overestimated, clearly lacking any factual base. The data, extracted from 62nd round of National Sample Survey¹, shows while the population in the age category 15-34 forms one third of the total, illiterates form one fourth of this category. Further disaggregating of data, for region, sex, and social category, throws up more dismal picture, indicating economic growth precludes a significant proportion of youth, who are projected as source of India's demographic dividend. Although the economic growth for India, represented by temporal change in indicators such as Gross Domestic Product (GDP), shows signs of acceleration during 2000-08, compared to earlier take off and stagnation phases, change of similar magnitude and of direction eluded educational attainment. In fact, the change is far below the desirable level, whether the educational attainment is viewed as an essential for the participation in employment or as a requirement to fulfill elementary civic functions.

While recent initiatives, by the state and civil society, may increase the count of lowest part of educational attainment scale, by increasing the count of the category 'just literates' and those with four years of schooling, the desirable level of educational attainment in middle and higher segment of the scale is likely to be a mirage unless path breaking innovations happen. On the other hand, supposing a major reform elevates educational attainment in backward regions, of women and socially disadvantaged categories, in particular the attainment of secondary and tertiary levels, a significant proportion of population, who are not in labour force, can take part in the labour market.

¹ 62nd Round correspond to 2005-06.

Unequivocally, this reasoning is linear, without complexity. But two noteworthy patterns –(a) direct relation between educational attainment and unemployment and (b) direct relation between educational attainment and labour who earn regular salary as a proportion of total employment– point to related but more contemporary themes such as skill level and employability of labour force. We unravel the pattern of educational attainment of youth, the age category 15-34, both aggregate and disaggregated data for region, sex, and social category. Moreover, six variables –Work Participation Rate (WPR), Labour Force Participation Rate (LFPR), Rate of Unemployment, Employment Status, Distribution of Economic Activity and Distribution of Occupation are examined for different levels of educational attainment. While the core of analysis is based on unit level data of NSS 62nd Round, released in 2008, data based on Census 2001 support the analysis.

The paper consists of four sections. Section 2 provides an overview of the distribution of educational attainment, both aggregate and disaggregate. The link between educational attainment and labour market is examined in section 3. Section 4 gives concluding remarks.

2. Educational Attainment of Youth

Following Thomas et al (1998), we use a scale of educational attainments, consisting of seven stages of schooling i.e. illiteracy, literate but below primary, primary, middle, secondary, higher secondary, and graduation and above². Bino et al (2008), taking district as the level of aggregation, classifies data into six patterns (Table 1). These patterns are identified using an interval scale of proportion of illiterate youth (age group 15-34). The scale consists of five segments: less than 15, 15 to 34, 35 to 44, 45 to 54 and 55 and above. It is important to note districts falling in last three segments (first three rows in the table), representing higher illiteracy rates, constitute slightly above a third of the total. Salient feature of these districts is the asymmetric frequency distribution of educational attainment, constantly declining frequencies followed by the highest frequency for

² Respective years of schooling are 0, greater than zero but less than 4, 4, 7, 10, 12 and 15 and above.

illiteracy. Most of these districts are located in two large populous states –Uttar Pradesh and Bihar characterized by low human development indicators. On the other hand, close to one sixth of districts show relatively symmetric pattern of educational attainment i.e. highest frequency for secondary education.

It appears first two patterns given in table 1 adequately represent educational attainment of population above 34 years while pattern 3 fits the distribution for the age group of 15-34 (Table 2). Whether youth or old, distribution of educational attainment remains asymmetric, varying in degree. The proportion of illiterates varies from one fourth to two third, lowest for youth and highest for the age group of sixty and above. Within the age group 15-34, there is a sharp contrast between patterns for male and female, for both urban and rural sectors (Table 3). Interestingly, while illiterates as a proportion of urban youth male population is just one fifteenth, this ratio for rural youth female is two fifth. Since the share of rural sector in youth population is three fourth, the contrast between rural and urban sectors in educational attainment is well reflected in aggregate figures. Further, educational attainment is sensitive to social category. As shown in Table 4, educational attainment of socially disadvantaged categories –Scheduled Caste, Scheduled Tribe, and Other Backward Caste- is lower than the category ‘others’³.

Cues from the data direct why the progress in educational attainment is not linear, rather couched in social-regional factors. Perhaps, an inclusive policy encompassing socio-economic-regional progress may push educational attainment to the desirable level. It is important to note initiatives by Government of India, such as *Sarva Siksha Abhiyan* is making strides in inclusive education, in particular primary stages of educational attainment. However, the progress in the attainment of higher level of education, especially formation of employable skills, remains a formidable task to accomplish. The following section assesses the educational attainment in the context of labour market.

³ The category others refers to forward castes, who were not subject to social institutions such as untouchability, nor this category is relatively worse off .

Table 1: Percentage of Illiteracy and Major Regions in India-2001 (Age group 15-34)

Types of Category (Percentage of illiteracy)	Total districts	Major regions	Nature of the Pattern of Educational Attainment
55 and above	27 (4.55)	Northern Bihar, Southern Orissa, Part of Eastern Uttar Pradesh	Downward Sloping
45 to less than 55	63 (10.62)	Central Bihar, Parts of Southern and Eastern Uttar Pradesh	Downward Sloping with less obvious pikes in the middle
35 to less than 45	119 (20.07)	Part of Eastern UP, Vindhya Region of Madhya Pradesh, Western Assam, Western and South-eastern Rajasthan	Downward Sloping with more visible pikes in the middle
15 to less than 35	297 (50.08)	North West Bengal, Northern Karnataka, Central Maharashtra	Relatively fuzzy pattern
Less than 15	87 (14.67)	Kerala, Mizoram, Goa, Lakshadweep	Fuzzy to inverted U-Shape
Total	593 (100.00)		

Note: Figure in parenthesis indicates percentage

Source: Bino et al. (2008) based on Census 2001

Table 2: Distribution of Educational attainment (2005-06)

Level of Educational Attainment	Age Interval			For all ages
	15-34	35-59	60 and Above	
Not Literate	23.4%	46.8%	66.0%	38.8%
Just Literate	8.2%	10.6%	10.1%	18.0%
Primary	15.2%	12.3%	8.6%	14.2%
Middle	23.8%	12.4%	5.8%	13.5%
Secondary	13.5%	7.6%	4.6%	6.9%
Higher Secondary	9.6%	4.5%	1.7%	4.5%
Graduate and Above	6.3%	5.9%	3.2%	3.9%
Total	100.0%	100.0%	100.0%	100.0%

Source: Computed from NSS62nd Round Unit Level data

**Table 3: Distribution of Educational attainment (2005-06),
Region and Sex**

Level of Educational Attainment	Rural (Age group 15-34)		Urban (Age group 15-34)	
	Male	Female	Male	Female
	Not Literate	17.3%	39.0%	6.9%
Just Literate	9.5%	9.1%	5.5%	5.1%
Primary	18.1%	14.9%	12.1%	11.1%
Middle	27.1%	20.0%	25.8%	22.4%
Secondary	14.4%	9.7%	18.2%	16.7%
Higher Secondary	9.3%	5.0%	17.3%	15.0%
Graduate and Above	4.4%	2.3%	14.2%	14.3%
Total	100.0%	100.0%	100.0%	100.0%

Source: Computed from NSS62nd Round Unit Level data

**Table 4: Distribution of Educational attainment (2005-06),
Social category**

Level of educational attainment	Social Category (Age group 15-34)				Total
	Scheduled Tribe	Scheduled Caste	Other Backward Class	Other	
Not Literate	37.8%	31.0%	25.0%	12.5%	23.4%
Just Literate	13.1%	8.6%	8.6%	6.2%	8.2%
Primary	16.3%	18.1%	15.0%	13.5%	15.2%
Middle	19.5%	22.6%	24.2%	25.1%	23.8%
Secondary	6.4%	10.2%	13.5%	17.6%	13.5%
Higher Secondary	5.0%	6.1%	9.1%	13.7%	9.6%
Graduate and Above	1.9%	3.6%	4.5%	11.4%	6.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Computed from NSS62nd Round Unit Level data

3. Educational Attainment and Labour Market: Vital Links

We assess the link between educational attainment and six labour market related variables, covering Work Participation Rate (WPR), Labour Force Participation Rate (LFPR), Rate of Unemployment, Employment Status, Distribution of Economic Activity and Distribution of Occupation. WPR refers to employed as a percentage of population. Labour Force as a percentage of population is expressed as LFPR. The labour force consists of employed and unemployed. Unemployed as a percentage of labour force is defined as rate of unemployment. Employed is divided into three categories: self employed, regular salaried and casual labour. These categories of employment are referred to as employment status. Moreover, economic activity and occupation of labour force are examined for each level of educational attainment (Table A1, Appendix). As given by NSS, employment is measured using three reference periods: one year, one week and each day. In this paper, we use the year based criterion which is called usual principal activity status⁴.

⁴ “The usual activity status relates to the activity status of a person during the reference period of 365 days preceding the date of survey. The activity status on which a person spent relatively longer time (i.e. major time criterion) during the 365 days preceding the date of survey is considered as the *usual principal activity status* of the person.” (NSSO, 2005-06, p 14)

Quite clearly, WPR and LFPR, indicators of labour supply, when plotted against educational attainment shows U shaped pattern irrespective of sector and sex (Table 5). While these indicators decline along the range, starting from illiteracy to higher secondary, the plot takes U turn for graduation and above. Perhaps, the U shape may be explained by the importance of higher human capital, in particular tertiary education, to get job in growing service sector in India. Quite importantly, the service sector accounts for nearly three fifth of Indian GDP. WPR varies from 8.8 % to 92.3 %, lowest for urban female with secondary education and highest for illiterate rural male. For young Indian women, education is yet to act as a driving force towards labour market. For rural and urban, just one fourth of young women graduates are employed. On the other hand, close to three fourth of male graduates are employed. It is doubtful the progress in educational attainment alone levels WPR of young women to WPR of young men. Such a significant change calls for progressive change in social institutions along with the progress in educational attainment.

As shown in Table 5, there is a direct relation between educational attainment and rate of unemployment, and this pattern holds good irrespective of sex and sector. If chances of being unemployed increases with the level of education, what links the educational attainment with the employment. Cues from the table hint that employment status is sensitive to educational attainment. Notably, of three categories of employment -self employment, regular salaried/wage, and casual labour- second one, regular salaried is relatively advantageous for the labour, viewing this category provides regularity in wage and, a large proportion of this category avails social security. Quite evidently, proportion of regular employment is highest for graduates and above. Moreover, there is a direct relation between percentage of regular employment and educational attainment. Obviously, more educated would look for decent jobs, ensuring regularity and social security, which results in competition for the employment. So, it is quite likely rate of unemployment increases with educational attainment. While it is important to induce more supply of decent job for reducing unemployment among educated, supply of manpower with employable skill should go up.

Table 5: Educational attainment and Labour Market Variables (2005-06)

sex	sector	Level of Educational Attainment	Employment Status (Age group 15-34)					Total	Age group 15-34		
			Self Employed	Regular Salary	Casual Labour	Un employed	Not in Labour Force		WPR	LFPR	Rate of Un Employment
Male	Rural	Not Literate	35.5%	5.0%	51.7%	1.1%	6.8%	100.0%	92.2%	93.2%	1.1%
		Just Literate	42.3%	5.6%	43.9%	2.3%	6.0%	100.0%	91.7%	94.0%	2.5%
		Primary	39.3%	7.3%	35.1%	2.6%	15.7%	100.0%	81.6%	84.3%	3.1%
		Middle	38.9%	8.2%	22.3%	3.3%	27.3%	100.0%	69.4%	72.7%	4.5%
		Secondary	33.0%	8.8%	14.2%	4.8%	39.1%	100.0%	56.0%	60.9%	8.0%
		Higher Secondary	33.9%	13.2%	7.2%	7.3%	38.4%	100.0%	54.3%	61.6%	11.9%
		Graduate and Above	41.5%	27.8%	3.1%	13.4%	14.2%	100.0%	72.4%	85.8%	15.6%
		For all levels	37.5%	8.6%	28.3%	3.7%	21.8%	100.0%	74.5%	78.2%	4.8%
	Urban	Not Literate	33.8%	20.4%	32.6%	3.6%	9.7%	100.0%	86.7%	90.3%	4.0%
		Just Literate	29.3%	27.9%	32.8%	2.9%	7.0%	100.0%	90.1%	93.0%	3.1%
		Primary	29.5%	29.2%	25.4%	5.6%	10.3%	100.0%	84.1%	89.7%	6.3%
		Middle	25.8%	28.1%	14.1%	7.0%	25.0%	100.0%	68.0%	75.0%	9.3%
		Secondary	22.6%	22.3%	6.7%	5.1%	43.2%	100.0%	51.7%	56.8%	9.1%
		Higher Secondary	19.6%	23.1%	2.8%	6.1%	48.4%	100.0%	45.5%	51.6%	11.8%
Graduate and Above		27.9%	44.3%	1.0%	10.9%	15.9%	100.0%	73.3%	84.1%	12.9%	
For all levels		25.6%	28.1%	12.6%	6.4%	27.2%	100.0%	66.4%	72.8%	8.8%	
Female	Rural	Not Literate	18.4%	0.7%	18.6%	0.3%	62.0%	100.0%	37.7%	38.0%	0.7%
		Just Literate	15.7%	1.5%	16.4%	0.2%	66.2%	100.0%	33.6%	33.8%	0.6%
		Primary	14.5%	1.1%	11.7%	0.6%	72.0%	100.0%	27.3%	28.0%	2.3%
		Middle	13.0%	1.8%	6.9%	1.5%	76.8%	100.0%	21.6%	23.2%	6.7%
		Secondary	9.0%	2.0%	3.4%	3.1%	82.5%	100.0%	14.5%	17.5%	17.4%
		Higher Secondary	8.5%	5.4%	0.7%	4.0%	81.3%	100.0%	14.6%	18.7%	21.5%
		Graduate and Above	7.8%	16.1%	1.0%	9.9%	65.1%	100.0%	24.9%	34.9%	28.5%
		For all levels	14.9%	1.7%	12.3%	1.3%	69.9%	100.0%	28.9%	30.1%	4.2%
	Urban	Not Literate	7.8%	6.7%	7.9%	0.3%	77.2%	100.0%	22.4%	22.8%	1.4%
		Just Literate	11.4%	4.3%	5.4%	0.5%	78.3%	100.0%	21.2%	21.7%	2.3%
		Primary	6.5%	6.3%	3.3%	0.9%	83.1%	100.0%	16.0%	16.9%	5.4%
		Middle	5.3%	3.7%	1.7%	1.6%	87.7%	100.0%	10.7%	12.3%	13.2%
		Secondary	3.3%	4.6%	0.9%	1.8%	89.4%	100.0%	8.8%	10.6%	16.9%
		Higher Secondary	2.6%	6.2%	0.1%	3.4%	87.7%	100.0%	8.9%	12.3%	27.7%
Graduate and Above		3.7%	19.5%	0.2%	8.1%	68.5%	100.0%	23.4%	31.5%	25.7%	
For all levels		5.2%	7.3%	2.4%	2.5%	82.6%	100.0%	14.9%	17.4%	14.4%	

Source: Computed from NSS62nd Round Unit Level data

While lower levels of educational attainment report lower unemployment rates, casual employment forms a significant proportion of employment for low levels of education, which is devoid of desirable levels of regularity and social security. It is important to note higher level of educational attainment increases laborer's chances to get employment in service sector, which increasingly explains the economic growth (Table 6). Also, higher level of education, in particular, is critical for entering to professional or technical occupation (Table 7). In contrast to agriculture, which employs half of Indian youth, emerging sectors such as financial intermediation and conventional one like manufacturing have two third and one third of employment as regular salaried/wage employees, respectively (Table 8). Interestingly, regular salaried employment forms four fifth of professional/technical occupations, which requires labour to have higher educational attainment. Moreover, occupational mobility, for example mobility from clerk to administrator, is largely determined educational attainment.

For Indian youth, beyond doubt, inclusive initiatives, not only to make more population literate but increase the supply of those with employable higher educational attainment, can play pivotal role in achieving outcomes such as availability job with regularity and social security, occupational mobility, and participation in economic growth. Bino et al (2008), comparing Bihar and Kerala, states characterized by low and high educational attainment respectively, shows occupational diversity is much higher in Kerala compared to Bihar. Realistic strides towards achieving desirable outcomes need to focus on closing inequalities -regional, gender, and social categories-, viewing educational attainment is sensitive to these features.

Taking cues from the data on educational attainment and six labour market related variables, presumably, demographic advantage depicted by the demographic pyramid appears to be a potential, rather an advantage. Obviously, educational attainment of Indian youth is far from satisfactory level, not adequate to enable a significant proportion of youth's participating in advantages of economic growth. Moreover, progress in educational attainment is vital for reducing socio-economic inequalities, enabling disadvantaged population, who are subject to multiple sources of discrimination

including gender, caste, class and region, to participate in employment, more specifically availability of jobs with social security.

Table 6: Educational attainment and Economic Activity (2005-06)

Economic Activity (NIC 2004 1 Digit code)	Level of Educational Attainment (Age group 15-34)							Total
	Not Literate	Just Literate	Primary	Middle	Secondary	Higher Secondary	Graduate and Above	
Agriculture, Hunting and Forestry (51.3)	34.8%	12.2%	18.1%	20.8%	7.7%	4.2%	2.1%	100.0%
Fishing (0.4)	19.9%	18.8%	23.1%	25.8%	8.8%	2.4%	1.2%	100.0%
Mining Quarrying (0.7)	37.3%	9.8%	21.0%	14.7%	8.9%	2.7%	5.6%	100.0%
Manufacturing (14.3)	16.2%	8.9%	20.7%	28.9%	12.3%	7.9%	5.1%	100.0%
Electricity, Gas and Water Supply (0.2)	3.7%	5.3%	11.8%	16.8%	16.7%	15.4%	30.2%	100.0%
Construction (7.6)	27.2%	12.7%	22.4%	22.7%	9.3%	4.0%	1.7%	100.0%
Trade (10.1)	11.0%	6.8%	13.3%	29.8%	16.1%	12.7%	10.3%	100.0%
Hotels & Restaurants (1.4)	17.2%	9.2%	22.7%	29.6%	9.2%	8.7%	3.3%	100.0%
Transport, Storage and Communication (5.1)	13.7%	10.0%	18.4%	29.4%	15.2%	8.4%	4.9%	100.0%
Financial Intermediation (0.7)	0.9%	0.3%	0.8%	10.0%	9.5%	20.2%	58.3%	100.0%
Real Estate (1.3)	3.0%	2.6%	4.7%	15.2%	10.4%	14.0%	50.3%	100.0%
Public Administration (1.0)	6.3%	6.8%	4.1%	12.3%	21.3%	20.2%	29.0%	100.0%
Education (2.4)	1.2%	0.8%	2.6%	3.7%	10.0%	21.0%	60.6%	100.0%
Health and Social Work (0.7)	0.0%	0.2%	2.3%	15.0%	17.3%	28.2%	37.0%	100.0%
Other Community Social Personal services (1.7)	14.4%	11.5%	17.5%	28.4%	12.5%	7.6%	8.2%	100.0%
Undifferentiated Production (0.8)	39.7%	14.3%	21.4%	15.7%	6.7%	1.6%	0.5%	100.0%

Note: Figures in parenthesis is the share in employed (%)

Source: Computed from NSS62nd Round Unit Level data

Table 7: Educational attainment and Occupation (2005-06)

Occupation (NCO 2004)	Level of Educational Attainment (Age group 15-34)							Total
	Not Literate	Just Literate	Primary	Middle	Secondary	Higher Secondary	Graduate and Above	
Professional/ Technical (3.5)	0.5%	0.0%	0.8%	3.9%	9.7%	21.4%	63.7%	100.0%
Administrators /Managers (3.3)	8.8%	5.0%	15.0%	24.3%	15.0%	12.6%	19.4%	100.0%
Clerical/Supervisory Workers (10.4)	9.4%	5.1%	10.7%	25.1%	16.4%	15.2%	18.2%	100.0%
Service/Sales Workers (4.0)	18.8%	11.7%	19.4%	24.4%	13.3%	7.6%	4.7%	100.0%
Agriculture and Related Work (52.0)	34.7%	12.3%	18.2%	20.8%	7.6%	4.2%	2.1%	100.0%
Production & Operation Related Work (26.8)	20.2%	11.1%	21.3%	28.1%	11.4%	6.1%	1.8%	100.0%

Note: Figures in parenthesis is the share in employed (%)

Source: Computed from NSS62nd Round Unit Level

Table 8: Employment Status, Economic Activity and Occupation

Economic Activity NIC 2004 1 Digit	Employment Status (Age group 15-34)			Total
	Self Employed	Regular Salary	Casual Labour	
Agriculture, Hunting and Forestry	55.9%	1.4%	42.7%	100.0%
Fishing	63.7%	3.4%	32.9%	100.0%
Mining Quarrying	11.9%	15.5%	72.7%	100.0%
Manufacturing	41.6%	37.7%	20.7%	100.0%
Electricity, Gas and Water Supply	1.2%	77.1%	21.8%	100.0%
Construction	9.3%	5.4%	85.3%	100.0%
Trade	68.1%	25.9%	6.0%	100.0%
Hotels & Restaurants	52.1%	33.8%	14.1%	100.0%
Transport, Storage and Communication	37.3%	42.2%	20.4%	100.0%
Financial Intermediation	30.5%	67.3%	2.2%	100.0%
Real Estate	40.4%	53.4%	6.2%	100.0%
Public Administration	2.4%	92.0%	5.6%	100.0%
Education	13.9%	84.7%	1.4%	100.0%
Health and Social Work	33.8%	65.4%	0.8%	100.0%
Other Community Social Personal services	64.6%	24.7%	10.7%	100.0%
Undifferentiated Production		61.3%	38.7%	100.0%
Occupation (NCO 2004)	Self Employed	Regular Salary	Casual Labour	
Professional /Technical	20.2%	79.1%	0.6%	100.0%
Administrators/Managers	89.3%	9.9%	0.8%	100.0%
Clerical/Supervisory Workers	57.1%	39.6%	3.4%	100.0%
Service/Sales Workers	34.9%	52.0%	13.1%	100.0%
Agriculture and Related Work	55.9%	1.5%	42.7%	100.0%
Production & Operation Related Work	28.9%	27.6%	43.6%	100.0%

Source: Computed from NSS62nd Round Unit Level

4. Concluding Remarks

This paper, assessing educational attainment and six variables related to labour market – WPR, LFPR, rate of unemployment, employment status, economic activity and occupation-, doubts the veracity of the view that enormity of youth population in India is a key source of demographic dividend. On the other hand, the paper exposes inadequacy of educational attainment to support a large chunk of Indian youth in availing advantages of economic growth. Moreover, the magnitude of this inadequacy is relatively higher for segments of youth population including rural youth, who form the majority of youth population, women, social categories like scheduled caste and scheduled tribe.

Appendix

Table A1: Labour Market related variables and explanation

Variable	Explanation
WPR	$WPR = (E / P) * 100$; E = Employed, P = Population
LFPR	$LFPR = (L / P) * 100$; L = Labour Force, P = Population
Rate of Unemployment	Rate of Unemployment = U / L ; U = Unemployed
Employment Status	E = SE + RS + CL; SE = Self Employed, RS = Regular Salary / wage Labour CW = Casual Labour
Economic Activity Distribution	National Industrial Classification (NIC) 2004 1 Digit Classification of Economic Activity
Occupational Distribution	National Classification of Occupation (NCO) 1968 Broad Divisions

Note: These variable explained in detail in *NSS 62nd Round Report No 522 - Employment and Unemployment Situation in India 2005-06*

References

Bino Paul G D, Sony Pellissery, Kishore Birdikar, Shaoni Shabnam, Milly Sil Krishna M, and Pathan J I (2008), "Educational Attainment of Youth and Impications for Indian Labour Market: An Exploration Through Data", *The Indian Journal of Labour Economics*, 51, 4, pp 813-830

National Sample Survey Organisation (2005-06), *Report No 522 -Employment and Unemployment Situation in India 2005-06, 62nd Round*, Ministry of Statistics and Programme Implementation, Government of India.

Thomas Vinod, Yan Wang, and Xibo Fan (2000), "Measuring Educational Inequality: Gini coefficients of education", *Working Paper 252*, World Bank Institute, USA.