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AN ANALYSIS UPON VARIOUS MEASUREMENTS OF EDUCATION ACCOMPLISHMENT: A CASE STUDY OF INDIAN CONTEXT

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An Analysis upon Various Measurements of Education Accomplishment: A Case Study of Indian Context

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Abstract – This paper breakdowns the measurement issues in education accomplishment, and coordination of education objectives and targets, in the connection of human development in India. Measurement issues are recognized by (a) decision of indicators and variables and (b) data utilized within estimation/projection/computation of indicators and variables in the global human development reports (Hdrs) and in India's national and sub-national Hdrs. This analysis establishes the non-likeness of measurement of the education accomplishment by indicators and variables, and shows a case for mix of education objectives and targets between global, national and sub-national levels. Policy suggestions and goals from these breakdowns of the Indian experiences offer lessons for measurement of education accomplishment in creating countries.

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INTRODUCTION

The United Nations Development Programme (UNDP) has been setting up the global Human Development Report (HDR) since 1990. Every year, the HDR concentrates on a dissimilar topic that has suggestions in illustrating and measuring of multidimensional nature and process of human development. The HDR presents a brief marker on the level of human development in every nation. This marker is called Human Development Index (HDI) and is composite of future, education and GDP files. Countries are stacked up as per the value of the HDI. Case in point, UNDP-HDR 2004 (UNDP, 2004) ranks India 127th around 177 countries according to the value of HDI (=0.595). Of the three sub-files, the value of future file is most elevated (=0.64) and is emulated by education list (0.59) and GDP record (=0.55). In this manner, HDI is characteristic of expansive source/s of poor or high execution of a nation's human development. As the lists are built on a twelve-month premise, they serve as of service policy devices for (a) following of nature/direction and greatness of progressions in human development and (b) outline and usage of development policies from the perspective of enhancing human development. In perspective of above policy profits, the HDI and its technique in UNDP-Hdrs have been adopted at the national and sub-national (or State) levels in India.

Proficiency and enrolment in formal education are the principle indicators in the construction of education accomplishment list (or, in short, education record all around). These indicators are measured by variables, contingent upon the accessibility of data. In this manner, as a rule, measurement has two dimensions: (a) decision of indicators and variables and (b) data issues (for instance, accessibility of dependable data by sources and years, and nature of data conformities). Varieties in these dimensions, different things continue as before, help spatial and fleeting varieties in estimated / computed / projected value of education list.

The fundamental destination of this paper is to break down the measurement of education indicators and variables in India's national and sub-national Hdrs, and to contrast India's experiences and the UNDP-Hdrs. This analysis is planned for three purposes. First and foremost, to establish similarity in measurement of education indicators and variables between global and India's national and sub- national Hdrs. Second, to show a case for policy reconciliation in education indicators and variables between global and India's national and sub-national Hdrs. Third, to offer India's experiences in the measurement of education indicators and variables, and coordination of policy objectives and targets in human development, as lessons to creating countries.

The above suggestions appear to be underived in the policy and expert literary works on India's human development. This is obvious, case in point, in Kaur and Misra'(2003) exact analysis of the nature and effect of education expenditure on educational accomplishment in 15 non-class states in India throughout 1985-86 to 2000-01 That is, effect of (an) education using, (b) degree of financial development

(that is, for every capita State salary), (c) level of development of physical base (that is, number of schools for every 1000 populace), (d) social factors (that is, portion of young ladies in secondary enrolment), and (e) other particular indicators (for instance, pupil/teacher proportion) are estimated on education indicators (that is, horrible enrolment proportion by primary and secondary education and by secondary education) in panel data models. The effects demonstrate that, when straight practical structure is utilized, the coefficient of all the illustrative variables (or with the exception of pupil/teacher degree) are certain and factually huge in clarifying the varieties in terrible enrolment proportion of primary and secondary (or secondary) education. The estimated coefficient of education using shows a littler extent in deciding terrible enrolment degree of secondary education, likely because of disregard of private expenditure that is more imperative for secondary education.

SELECTION OF EDUCATIONAL INDICATIONS AND PARAMETERS

The World Bank's World Development Indicators (WB-WDI) give a system to distinguishing proof and measurement of education indicators and variables in international development (World Bank, 2001). Education indicators incorporate education info, support, proficiency and results. Distinctive variables and their measurement characterise each of these indicators. Case in point, expenditure for every understudy is one of the variables of education data marker and is measured independently by expenditure for every scholar in primary, secondary and tertiary education as a rate of terrible national wage for every capita. Horrible Enrolment Ratio (GER) is one of the variables of education investment marker and is measured independently by GER in primary, secondary and tertiary education as a rate of significant age bunches. Number of repeaters is one of the variables of education effectiveness marker and is measured by repeaters as a rate of aggregate enrolment of understudies by primary and secondary education. Mature person education rate is one of the variables of education results marker and is measured by rate of male and female ability. Utilizing the above skeleton, measurement of education indicators and variables is broke down in global and in India's national and sub-national human development reports.

1. Decision of indicators and variables in global Hdrs : Education indicators and variables and their measurement in the construction of HDI in the UNDP-Hdrs are well known. Education result (or grown-up education rate) was the single education pointer (or variable) in UNDP-HDR 1990. In UNDP-HDR 1991, the amount of variables was expanded to 2 with differential weight: 2/3 weight for mature person ability rate and 1/3 weight for mean years of educating. In UNDP-HDR 1995, mean-years of educating had traded consolidated horrible primary, secondary and tertiary enrolment proportion. This trade included education execution as another education pointer in the construction of HDI. In this manner, no change is obvious in the nature and number of indicators and variables and their weight.

What's more, the UNDP-Hdrs give extra education variables to measurement of supplementary human development files. A correlation of extra variables and supplementary files in UNDP-HDR 1991 and 2004 shows wide assorted qualities in the nature and number of indicators and variables. Case in point, 4 (or 6) indicators and 26 (or 23) variables are incorporated in UNDP-HDR 1991 (or 2004). The indicators in UNDP-HDR 1991 incorporate profile of human development and human hardship, drifts in human development, human capital shaping and education profile. Ability and enrolment variables are (an) overwhelming under the profile of human development and patterns in human development and (b) significant under the human capital creation and education profile. Then again, indicators in UNDP-HDR 2004 incorporate responsibility to education public using, education and enrolment, engineering dissemination and creation, necessities in public using, sexual orientation related development record and sex favoritism in education. Proficiency and enrolment variables are predominant under the ability and enrolment, sex related development record and sexual orientation imbalance in education.

A significant characteristic of the extra indicators and variables is their creation of public finance indicators. In the UNDP-HDR 1991, three indicators are recorded. To start with, public expenditure on education as a rate of GNP. Second, public expenditure on education as a rate of aggregate public expenditure. Third, public expenditure on primary education as a rate of all levels of education. Then again, this rundown is adjusted and stretched out in UNDP-HDR 2004 by including (a) public expenditure on preprimary and primary education as a rate of all levels of education; (b) public expenditure on secondary education as a rate of all levels of education; and (c) public expenditure on tertiary education as a rate of all levels of education.

In the later past, the part of education indicators/variables is expressly noted in global intensity of countries. This is clear, case in point, in the hard data-based education indicators in the World Economic Forum's Global Competitiveness Report, International Institute of Management Development's World Competitiveness Yearbook, World Bank's Competitiveness Indicators, International Telecommunication Union's Digital Access Index and World Economic Forum and the World Bank's Network Readiness Index. The most well-known education variables in these records incorporate (a) primary and secondary enrolment degree, (b) normal years of educating, and (c) grown-up education rate. Consequently, measurement of human development is

contributory to measurement of between national intensity, as it is identified with education variables.

2. Decision of indicators and variables in India's national and sub-national Hdrs : Table 1 exhibits a rundown of education support and results indicators in the construction of HDI in India's national and sub-national Hdrs. To begin with, not at all like in the UNDP-Hdrs, downright proficiency rate is utilized within the national and in all the State level Hdrs. Second, weight provided for the ability is the same in both national and sub-national Hdrs in India, as in UNDP-Hdrs. Third, GER in India's Hdrs contrasts from the UNDP-Hdrs by avoidance of tertiary enrolment. In the meantime, stamped contrast are clear in incorporation of higher secondary enrolment between national and sub-national Hdrs and between sub-national Hdrs. Fourth, Maharashtra HDR is an unique case for utilizing mean years of educating as opposed to GER, as in UNDP-HDR 1991.

Interestingly, in India's national and State level HDRs, education finance variables are listed separately from the education indicators. For instance, in India's national HDR 2001, education expenditure indicators (under Governance indicators, however) include education expenditure ratio and as a part of public expenditure ratio, development expenditure ratio and social sector expenditure ratio. In the context of Karnataka HDR 1999, education finance variables are related to: (i) sectoral outlay for general education by primary education, secondary education, university and higher education, adult education and language development; (ii) education budget by revenue and capital expenditure; (iii) education outlays, i.e., share of education in annual plan outlay by State sector and District sector and share of education in non-plan expenditure; and (iv) total State expenditure on education, share of expenditure on education in total expenditure, and share of expenditure on education as a percentage of total State Income. Of these variables, (i) and (iv) are relevant in other State level HDRs, such as, Himachal Pradesh HDR 2002. In the case of Tamil Nadu HDR 2003, public expenditure on education per student by levels of education is used and role of private sector and international funding (for example, World Bank, UNESCO and UNICEF) for education is noted. Expenditure indicators are not highlighted in Madhya Pradesh HDR 2002 and Rajasthan HDR 2002. Thus, in general, financing of education is a neglected issue in India's sub-national HDRs.

Level and year of HDR	Measurement of education indicators and variables
National HDR	
India's HDR 2001	Literacy rate (weight=0.35): Proportion of literates to the population in the age group of 7 years and above Estimated Adjusted Intensity of Formal Education in years (weight=0.65): Weighted average of the enrolled students from Class I to Class XII (where weight equal to 1 for class I, 2 for Class II and so on), adjusted by proportion of total enrolment to population in age group 6-18
Sub-national HDRs	
Karnataka HDR	Literacy rate (age 7+) with 2/3 weight.
1999	Combined gross primary and secondary (Classes I to X) enrolment ratio with 1/3 weight
Maharshtra HDR	Literacy rate (age 7 +) with 2/3 weight
2002	Mean years of schooling (Standard 1 to Standard 7) with 1/3 weight
Madhya Pradesh	Literacy rate (age 6 +) with 2/3 weight
HDR 2002	Combined school level enrolment (ages 6-14) with 1/3 weight
Tamil Nadu HDR	Literacy rate (age 7+) with 2/3 weight.
2003	Combined gross enrolment ratio for primary, middle, high and higher secondary schools with 1/3 weight
Rajasthan HDR	Literacy rate (age 6 +) with 2/3 weight
2002	Combined school level enrolment (ages 6-14) with 1/3 weight
Himachal Pradesh	Literacy rate (age 7 +) with 2/3 weight.
HDR 2002	Combined gross primary and secondary (Classes I to X) enrolment ratio with 1/3 weight
Sikkim HDR 2001	Literacy rate (age 7+) with 2/3 weight Combined gross primary, secondary and higher secondary enrolment ratio with 1/3 weight
Punjab HDR 2004	Literacy rate (age 7+) with 2/3 weight. Combined primary school enrolment ratio with 1/3 weight
West Bengal HDR	Literacy rate (age 7+) with 2/3 weight.
2004	Combined primary school enrolment ratio with 1/3 weight
Nagaland HDR	Literacy rate (age 7+) with 2/3 weight.
2004	Combined primary, secondary and higher secondary school enrolment ratio with 1/3 weight
Assam HDR 2003	Literacy rate (age 7+) with 2/3 weight. Combined primary and middle school (Class I to Class VIII) enrolment ratio with 1/3 weight
Orissa HDR 2004	Literacy rate (age 7+) with 2/3 weight. Combined gross enrolment ratio (6-14 years) with 1/3 weight
Gujarat HDR 2004	Literacy rate (age 7+) with 2/3 weight. Combined gross enrolment ratio (6-14 years) with 1/3 weight

Table 1. Education indicators and variables in India's national and State level HDRs.

It should be emphasised that measurement of above education finance variables is limited to public expenditure on education. Thus, the role of private institutional expenditure on the provisioning of educational services, and household expenditure accessing of educational services are ignored. Lack of time series data on private institutional and household expenditure is the major reason for its non-inclusion in the HDRs.

DATA DIFFICULTIES

Data issues on education indicators and variables present an alternate measurement size in human development. Data issues are identified with nature and wellsprings of data and strategy (counting timing) of its accumulation; and system for estimation/computation and projection of indicators. In a definitive analysis, equivalence education file in human development calls for consistency in indicators and variables and in data issues. In what accompanies, the data issues are exhibited by global and by India's national and sub-national Hdrs.

1. Data issues in global Hdrs : Estimated and projected grown-up education rate and horrible enrolment proportion by the UNESCO are bases for construction of education list for India in UNDP-Hdrs. This is obvious in diverse manifestations of refered to wellsprings of data in the UNDP-Hdrs. Case in point, UNESCO is refered to as a primary wellspring of data on education and enrolment in HDR-1990 (UNDP, 1990: p.189) and HDR-1992 (UNDP, 1992: p.216]. In HDR-1994, key to indicators recognized

UNESCO as the main wellspring of data (UNDP, 1994: pp. 118-119). Since 1995, reference to data is given regarding correspondence on mature person proficiency rates and terrible enrolment proportions, in light of UNESCO's estimations and projections.

Table 2 exhibits the appraisals of education variable for India in UNDP-Hdrs from 1990 through 2004. It is evident that variety in grown-up ability rate and horrible enrolment proportion is checked by 18 estimated rate/ratio and reference year of the evaluation. Subsequently, case in point, the assessments are not tantamount with the decadal registration figures (for instance, the grown-up education rate is equivalent to 40.8% in Census of India 1981, 48.5% in Census of India 1991 and 61.3% in Census of India 2001) or with national example study gauges (for instance, 54.3% dependent upon NSSO 52nd Round 1995- 96).

2. Data issues in India's national and sub-national Hdrs : India's national HDR in 2001 and sub-national Hdrs since 1999 present disparate data issues.

Three noticeable data issues for proficiency variable, conversely with UNDP-Hdrs, are as accompanies. To begin with, all the Hdrs in India utilize the registration data for proficiency variable. Second, no HDR in India utilizes mature person proficiency rate. Third, between sub-national Hdrs, utilization of enumeration data is recognized 1991 and 2001. Specifically, non-accessibility of region level and mature person education data from

Evaluation of India 2001 (around then of setting up the Hdrs, nonetheless) are the primary explanations behind utilizing proficiency rate from Census of India 1991 in Karnataka, Tamil Nadu and Rajasthan Hdrs.

Year of UNDP-HDR	Estimated adult literacy rate and reference year of estimate	Estimated mean years of schooling* or combined gross enrolment ratio and reference year of estimate
1990	43.0% - 1985	Not applicable
1991	44.1% - 1985	2.20* - 1980
1992	48.2% - 1990	2.40* - 1990
1993	42.8% - 1990	2.40* - 1990
1994	49.8% - 1992	2.40* - 1992
1995	49.9% - 1992	55% - 1992
1996	50.6% - 1993	55% - 1993
1997	51.2% - 1994	56% - 1994
1998	52.0% - 1995	55% - 1995
1999	53.5% - 1997	55% - 1997
2000	55.5% - 1999	54% - 1999
2001	56.5% - 1999	56% - 1999
2002	57.2% - 2000	55% - 1999
2003	58.0% - 2001	56% - 2000-01
2004	61.3% - 2002	55% - 2001/02

Table 2. Estimates of education variables for India in UNDP-HDRs: 1990 to 2004.

Data issues in enrolment variable are striking in two regards. To begin with, no measurement of 20 enrolment variable in India's Hdrs incorporates tertiary enrolment because of absence of data. This is interestingly with the enrolment variable in the UNDP-Hdrs. Second, measurement of enrolment variable shifts between national and sub-national Hdrs, and between sub-national Hdrs, regarding nature of data gathering (that is, study versus regulatory registery techniques), consideration or avoidance of higher secondary education in registering terrible enrolment degrees, and in giving weights for distinctive levels of primary and secondary education. Utilization of mean years of educating, rather than GER, singles out Maharastra HDR 2002 from whatever is left of sub-national Hdrs in India.

Fundamentally, three data issues clarify non-likeness of education indicators and variables between global and Indian Hdrs. To start with, data on tertiary enrolment is needing whatsoever levels in India. Second, grown-up ability from the evaluation data and aggregate proficiency rate for between statistics years are not estimated for India's Hdrs. Third, absence of area level data is a significant demand for arrangement of India's sub-national Hdrs.

3. Empirical Implications : In perspective of the above contrasts in data issues, level of education accomplishment in Indian Hdrs are not similar with global Hdrs. In the same way, education accomplishment between national and sub-national Hdrs, and between sub-national Hdrs, are not practically identical, despite they are readied for that year.

Since 1990, UNESCO's strategy has given assessments of twelve-month mature person proficiency rate and joined GER for India in UNDP-Hdrs. Reference year for the vast majority of the grown-up proficiency appraisals is for between enumeration years. For GER, the reference year is under five years to the Hdrs' publication year. All things considered, no reference to this imperative strategy, or clarification for its inapplicability, appears to have figured in India's Hdrs. Indeed, UNESCO's philosophy is of most extreme significance for enhancing the measurement and improving observational legitimacy of education indicators and variables in India's Hdrs.

INTEGRATION OF POLICY OBJECTIVES AND AMBITIONS

The objectives and targets for education indicators are situated at global, national, and State level Hdrs and vision reports. Moreover, the objectives and targets are situated at the Departmental level. These objectives and targets are broke down beneath with the end goal of discovering their joining at distinctive levels.

An examination of the above objectives and targets suggest the accompanying. First and foremost, education objectives and targets are most concentrated on primary and secondary education, or education support and results indicators are most impacted by accomplishment of objectives and targets for the primary and secondary education. Therefore, objectives and targets of primary and secondary

education have immediate effect on human development. Second, education cooperation and results indicators are most essential in development objectives and targets at the international, national and the State level. As these indicators are of criticalness for accomplishing human development, there exists complementarity between objectives and targets of monetary development and human development whatsoever levels of development. This establishes a case for reconciliation of education objectives and targets between international, national and State levels.

An alternate paramount part of policy combination in India's human development is obvious, for example, at the departmental level in Karnataka State. The structure of primary and secondary education in Karnataka State is as takes after. The basic education is made out of 8 years of educating: Lower Primary Schooling (Class I through Class V) and Higher Primary Schooling (Class VI and Class VIII). The secondary education is of 4 years in term: more level secondary (or high) educating (Class IX and Class X) and higher secondary educating or Pre-University or Vocational education (Class XI and Class XII).

The Departmental Medium Term Fiscal Plan (DMTFP) of the Department of Primary and Secondary Education in the Government of Karnataka is a significant policy methodology to connection between goals, objectives and finances of primary and secondary education in the State. The Plan is readied on twelve-month foundation and furnishes with parts, around others, on goals and objectives, and current accomplishments and future targets for execution indicators.

The goals and objectives of the Department incorporate particular indicators of education data, support, results and proficiency. Specifically, the indicators reflect the policy concern with (an) upgrade of ability rates, enrolment of learners, and accomplishment levels in public examinations; and (b) diminishment in differences in sexual orientation and social aggregations, and spatial difference in enrolment and accomplishments in public examinations.

It ought to be emphasised that expand in enrolment is meant to be accomplished in three routes: build in horrible enrolment proportion, build in survival rate and lessening in out-of-school kids. The accomplishment levels are to be enhanced by focusing on a higher pass for every penny in Class VII and in Class X. Accomplishment in sexual orientation, social and local uniqueness is focused at diminishing the crevice in for every penny of out-of-school kids and pass for every penny in Class X, between (a) young men and young ladies, (b) complete and SC understudies, (c) absolute and ST learners, and (d) the State and northeastern area.

Generally, the targets and objectives of the Department of Primary and Secondary Education are eventually pointed at enhancing the education cooperation, result and effectiveness indicators. These indicators are of vital significance for education accomplishment in State's human development. This establishes a case for reconciliation of education objectives and targets between international, national, State and departmental levels in India.

CONCLUSION

This paper dissections the measurement of education indicators and variables in the setting of human development in India. Utilizing the structure as a part of WB-WDI and UNDP-Hdrs, measurement of education indicators and variables in India's national and sub-national level Hdrs are recognized. Further, policy coordination regarding education objectives, targets and targets are highlighted at global, national, provincial and departmental levels with uncommon reference to Karnataka State. These investigations lead to the accompanying conclusions and policy suggestions.

First and foremost, the nature of education indicators utilized within the construction of HDI in India's national and sub-national human development reports compare with the UNDP-Hdrs. In the meantime, measurement of education indicators regarding education and enrolment variables varies from the UNDP-Hdrs. This contrast is chiefly attributable to absence of (a) data on tertiary enrolment, (b) assessment of mature person proficiency from the evaluation data and education rate for between statistics years, and (c) locale level data on education indicators and variables. These contrasts call for development in data gathering and estimation of education indicators and variables as preconditions for refinement of measurement of education accomplishment in India's Hdrs and to establish likeness with global Hdrs on observational grounds. In this respect, materialness of UNESCO's procedure for estimation and projection of India's grown-up ability rates and joined together GER should be investigated for future readiness of India's Hdrs at the national and sub-national levels.

Support, extra education variables need similarity (regarding nature and number of variables) (a) between global and India's national and sub-national Hdrs, (b) between India's national and sub-national Hdrs, and (c) between India's sub-national Hdrs. This intimates that measurement of extra education variables is extraordinary to every HDR. In future, nonetheless, accumulation of extra variable ought to be centered to measurement of education indicators and variables (for example, as given in Table 1). This should increase the nature and extent of measurement of education accomplishment currently

India's national and sub-national human development.

Third, India's experiences display a mixof measurement divergences and policy reconciliation in education objectives and targets between global, national and sub-national Hdrs. Indeed, the policy reconciliation gives a premise to purpose the divergences in measurement of education accomplishment record in human development whatsoever levels. Generally, education accomplishment list, as a policy instrument for checking the accomplishment of education objectives and targets, will remain less advantageous for India's policy producers.

Fourth, private corporate and generous associations (for instance, Infosys Foundation, The International Society for Krishna Consciousness (ISKCON), Azim Premji Foundation) have augmented different help offices for India's primary education with respect to library, workstation education, nutritious nourishment plan and quality education plans. These wellsprings of private division financing are not incorporated in human development for absence of distributed data. Subsequently, policy consideration is required for measurement of private schooling segment's financing to India's human development.

The above conclusions and suggestions for India are of significance for other creating countries for (a) change of measurement of education indicators and variables in their national and sub-national Hdrs, and (b) incorporation of global, national and sub-national education objectives and targets in human development.

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