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IMPACT OF EDUCATION ON ECONOMIC DEVELOPMENT OF AGRI-HOUSEHOLD

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Abstract
Education not only contributes to improved farm production, but it also aids resource management by efficient distribution and raises the chance of emerging technological acceptance. This creates a good argument for further support for rural education. Non- formal schooling, specifically extension education, has a significant impact on agricultural development in addition to general education. As a result, an integrated educational program is needed to combine formal and non-formal education to educate and persuade farmers about modern technology. Since farm output in the country is becoming more technologically intensive, this is both urgent and significant. As a factor, the proliferation of technology to farms is just as critical as its generation. According to this backdrop, the studyhighlighted that relation between inequalities and economic development through educationin the study area.

Introduction

The concept of "educational growth" is so central to human existence that inequalities in its scales have resulted in imbalances between "people" and "place." Due to inequalities in educational development among citizens, the conceptions of "developing" and "developed" regions or nations have arisen. People live in the dark for decades due to a lack of schooling, with little dissemination of science and technology information.

The concept of educational equity has been viewed in several forms, and no overarching theory of educational equality should be applied to "direct policy planning" in all contexts. They vary from equitable "access" (schooling amenities "availability" and use) "to equal inputs (physical and material assets allocation) and equal outputs (educational attainment and life prospects)".

Review of literature

Manida. M, and Dr. G. Nedumaran (2019) through their work as **"Impact of E- Communication on Agriculture Development through CSR in Agri-Framer in Rajaplayam Taluk."** aim to examine farmers through "corporate social responsibility (CSR)" using web-based agro-communication on Agricultural growth. The study issue explores how these farmers used internet connectivity in rural growth. If so, what kind of CSR project they pursued rural development and how the organization executes its CSR plan as partof their outlook for production. The education of farmers is essential for better agricultural output.

Nedumaran, G. and M, Manida, (2020) named their work as**"E-Agriculture and Rural Development in India."**This study discusses the possible contribution that e-agriculture will bring to agricultural growth and the improved livelihoods of the agricultural population. Besides, wide spectrum architecture of the new state-of-the-art wireless sensor network is offered to Indian agriculture neighborhood as a vexing technology for observing their crops from a remote area.

Jitesh Kadian (2020) entitled their work as **"A study on Regulatory Challenges for Transforming Agriculture Produce Market in India through PPP mode."**The research analysis showed that the "Public-Private Partnership (PPP)" paradigm might be a big game- changer for the agriculture sector. PPPs that put together the combined influence of all agricultural ecosystem decision-makers — government, private companies, and also educationand science and development — can turn the sector

on multiple levels. With the government supplying and pre-financing the back-end of the value chain, and the private industry and farmers producing the remainder, the agriculture sector will remain India's key engine of ruraldevelopment and poverty reduction.

Jitender and Ankita Thakur (2020) titled their work as **"Causes of Low Productivity in Agriculture Sector in India."**The study found that farming is the main sector of the Indian economy, and land efficiency is a very significant factor in agriculture since it is the most stableand fixed factor amongst the three input sections: soil, labor, and money. Agricultural land productivity is defined by crop growth in terms of performance or yield per acre of land. Indian agricultural yield rates are very poor relative to other countries' profitability levels, and India's efficiency rates in major farming crops are very weak in terms of world rank.Nevertheless, the Government of India has appointed "the Indian Agricultural Research Council and many Agricultural Universities" to coordinate many crop production research and development programs. This year the Monsoon Cycle suggests a minor shift in the outlook of agriculture, and due to heavy rains, some areas of India are experiencing severe problems and ultimately contribute to the low productivity of many crops throughout the world. The current research paper outlines some reasons for low production in India's agriculture market, especially low awareness of education, particularly rural areas.

Objectives

1. To know the importance of education
2. To analyse the correlation between education, inequality and economic development of agri-households in Ananthapuramu
3. To draw the conclusions.

Sample design and data collectionSample design

Table-1 Sample selection of Agri-households in selected villages

Sl. No.	Developed Block	Location Code	Selected Village	Agri-Households		
				Total	Sample	Percentage
1	Bathalapalli	0918	Narsimpalli	2388	125	5.23
2	Somandepalli	0907	Julakunta	869	105	12.08
3	Lepakshi	0902	M.venkatapuramu	580	75	12.93
4	Madkasira	0884	YB halli	592	65	10.97
5	Penkonda	0900	Venkata reddy palli	252	57	22.61
			Sub Total	4681	427	54.82
Sl. No.	**Backward Block**	**Location Code**	**Selected Village**	**Agri-Households**		
				Total	**Sample**	**Percentage**
1	Mudugubba	0912	dorigillu	645	63	9.76
2	kothacheruvu	0891	Kodapagani palli	274	30	10.94
3	Gandlapenta	0893	Katarupalli	671	65	9.68
4	OD cheruvu	0916	gounipalli	260	27	10.38
5	Roddam	0875	nalluru	229	25	10.91
			Sub Total	2079	210	51.67

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Depending on the size of the operational landholdings, the sample farm households were classified into marginal farmers (MF), small farmers (SF), medium farmers (MEF), and big farmers (BF). Farm households were also classified into illiterates (E0), mere literates (El), primary (E2), middle (E3), secondary (E4), and higher secondary and higher (E5), based on the number of years of Schooling of the head of the household, the household / agricultural activities.

Source of Data

The pilot study was carried out to test and expedite the schedule under the current study. The primary data were subsequently collected during the agriculture year 2018-19 for this report's particular purposes. Data from broader household aspects like demographics, education, employment, and agricultural production was collected to evaluate the aims of the report. Village level aggregate data-general information about the village, village-level organization availability, industry, market prices, incomes, etc. were collected from village officers and village leaders during the first visit to the village. The researcher maintained a good relationship with each village's local leaders and clarified the research's nature and intent—the degree of cooperation they needed to obtain reliable data. The local village leaders worked together andhelped to collect accurate data in every way possible.

The data relating to individual households was collected from the farm household's head via the interview process. The data obtained in this survey is mainly focused on their call method.' It is also expected to be somewhat prejudicial. As the survey was conducted immediately afterthe second season harvest, the farmers could gather the required information. The completed questionnaires were reviewed for the answer and semi- inaccuracies the next day. Another tripwas made to collect specific and precise details from the same household in case of omissionsand unclear or incoherent responses. All reasonable attempts were made to get the exact details from the participants to the fullest extent possible.

Most secondary data is obtained from the reports and documents of the offices of the Joint Agriculture Director, the Chief Educational Officer, and the Assistant Statistics Director in addition to the 2011 Census Report and the Handbook of statistics YSR District, 2018.Data forall development indicators were collected from a wide range of sources, including District Elementary School office, Deputy Director of Health Services, Quinquennial Livestock Census, Season and Crop Report of Andhra Pradesh, Joint Director of Animal Husbandry, Annual Credit Plan of Lead Bank (Syndicate Bank), NIC DISNIC database, Factory Inspector, Andhra Pradesh Nutritious Integrated project, and district industries office, YSR district.

Frame work of Analysis

In India, the most prevalent types of inequity are "between (i) males and females, (ii) rural andurban areas, and (iii) developed and backward regions, (iv) backward and non-backward castes, and (v) high and low socio-economic classes". The regional types of inequities were examinedat the Ananthapuramu district's block level in this analysis. The Census of India 2011, Andhra Pradesh, provided detailed data on literacy and some associated aspects of economic growth.

Methodological issues arise when measuring inequality "between two mutually exclusive subsets, such as male-female and rural-urban.

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For a while, Naik's (1975) Coefficient of Equality was used to test inequality". It was described as follows:

$$\mathbf{E_n = [(X1/X2)100]}$$

"Where, XI and X2 are the proportion of literates between males and females in a block, respectively.

In practice, this coefficient would be greater than or equal to 100. Whether it is more significant than 100, it is assumed that the females are ahead of the males"; if it is lesser than100, it is assumed that the females are behind the males.

Sopher (1974) introduced the Disparity Index , a new measure of inequality that was described as follows:

$$\mathbf{"D_S = Log\ (X2/X1) + Log\ (100\text{-}X1)/\ (100\text{-}X2),\ where\ X2>X1."}$$

On the other hand, these techniques do not comply with the axiomatic framework defined for measuring a disparity index (Raza et al. 1990). An update to Sopher's Index was proposed byKundu et al. (1986). As a result, in this part, "Sopher's index, as updated by Kundu and Rao, was used. The following is a revised version of the index:

$$\mathbf{D_k = Log\ (X2/X1) + Log\ (Q\text{-}X1)/\ (Q\text{-}X2),\ where\ X2>X1\ and\ Q=200".}$$

Where,
XI: denotes the percentage of literate women.X2: reflects the male literacy rate.
The value of Q is assumed to be 200.

To measure inequalities in literacy rates, the following six classes were established,as described below.

"1) Male – Female; 2) Male - Female (Rural); 3) Male - Female (Urban); 4) Rural -Urban

5) Rural - Urban (Male); 6) Rural - Urban (Female)".

The following variables were chosen to investigate the essence of the partnershipbetween disparity indices and overall literacy rate/economic indicators.

"XI = Percentage of total literacy
X2 = Disparity index of male - female literacy
X3 = Disparity index of male - female (Rural) literacy X4 = Disparity index of male - female (Urban) literacyX5 = Disparity index of rural - urban literacy
X6 = Disparity index of rural - urban (Male) literacy X7 = Disparity index of rural - urban (Female) literacyX8 = Percentage of agricultural laborers
X9 = Percentage of cultivators XI0 = Percentage of other workers
XII = Percentage of rural literacy X12 = Percentage of urban literacy

X13 = Percentage of urban population
The variables X8, X9, X10, XI1, X12, and X13 have the same definitions as in the 2011 Censusof India"

Regional inequality

Before looking at the interrelationships between the "six indices of intra-block" difference in "literacy rates", it is essential to look at the degree to which they vary throughout blocks. Table- 1 shows the approximate "mean, standard deviation, and coefficient of variance for all six indices".

"Table-1; Estimated Values of Disparity Indices"

Sl. no	Disparity Index	Mean	SD	CV
1	Male - Female	0.243	0.039	16.05
2	Male - Female (Rural)	0.266	0.031	11.65
3	Male - Female (Urban)	0.189	0.028	15.01
4	Rural - Urban	0.157	0.056	35.67
5	Rural - Urban (Male)	0.126	0.046	36.51
6	Rural - Urban (Female)	0.199	0.074	37.19

Source; Computed field data

"The coefficients of variance for rural-urban components (X5-X7) are higher than male-female components(X2-X4)", as seen in Table-1. Among the rural-urban inequalities, females have the most significant coefficient of difference (rural-urban). It is worth noting that spatial differences outnumber gender differences.

The inter-relationship between the six indices was also investigated using the Factor Analysis methodology. The varimax rotation system is used to organize factors in descending order based on their overall variance. Gender differential and regional disparity were the only variables in the factor system, and they clarified "more than 94 percent of the overall variance.The communalities range from 0.87 to 0.99", indicating that the two variables account for a significant portion of any of the six disparity indices variance.

Table-2; "Rotated Factor Loadings of Disparity Indices"

"SI.No	Disparity Index	Factor-1	Factor-2	Communalities
1	Male - Female	- 00592	.96850	.93802
2	Male - Female (Rural)	.52069	.81423	.93409
3	Male - Female (Urban)	-.51463	.78006	.87334
4	Rural-Urban	.99554	-.02032	.99151
5	Rural-Urban (Male)	.96200	- 01690	.92574
6	Rural-Urban (Female)	.99739	.03938	.99633
	Eigen Value	3.44764	2.21140	
	Percentage of Variance explained	57.5	36.9	
	Cumulative percentage of variance explained	57.5	94.3"	

Source; Computed field data

"The factor loadings for the three factors contributing to rural-urban inequalities were found to be greater than 0.96, with the first factor on rotation responsible for more than 57 percent of the variance. As a result, the first factor may interpret the differences in literacy rates betweenrural and urban areas". Male-female literacy inequalities were the second interacting component, accounting for 36.9% of the overall variation. "High factor loadings in all three factors contributing to the male-female phenomenon reflect the importance of male-female differences".

Factor-1 has a higher explanatory power (Eigen value) than "Factor-2". It means that the inequalities between rural and urban areas are more significant than the "disparities" between men and women.

Literacy, Inequality, and Economic Development

An exploratory inquiry into the essence of these relationships was conducted in this segment. The association between inequality indices and literacy levels, as well as economic indicators, was investigated. The predicted correlation coefficients in Table-2 were used to conduct a preliminary investigation into this relationship's essence.

All six categories of different indexes are inversely related to overall literacy (X2 to X7). However, overall literacy is positively and negatively linked to gender inequality indexes (X2to X4). Between X1 and X4, the association value between literacy and gender inequality is - 0.61, whereas, between X1 and X2, it is -0.90.Literacy and spatial disparity (X5 to X7) have an association coefficient of less than -0.1. Because of the detrimental correlation, blocks with low literacy rates appear to have substantial inequalities and vice versa. These interconnectionshave shown that a decline has followed the spread of literacy in the degree of inequalities.

Rural literacy emerges as a significant determinant of overall literacy and is also strongly and favorably linked to various inequality indices, given the population's rural supremacy (47.41%). Total literacy and rural literacy have a correlation coefficient of 0.781. As a result, it is worth noting that overall literacy development has been stifled by the sluggish pace at which literacy has spread in rural areas. Table-3 describes the conclusions from the study of the first two factor loadings.

Table-3; Inter- Correlation Matrix - Literacy, Inequality, and Economic Development Indicators

Variables	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
X1	1												
X2	-.904*	1											
X3	.631$	.767*	1										
X4	.614$	.699*	.319@	1									
X5	-.068@	.031@	.485@	-.503@	1								
X6	-.086@	.040@	.431@	-.425@	.974*	1							

X7	.094 @	.035 @	.563$	-.498 @	.989*	.943*	1						
X8	-.830*	.768*	.609$	.236 @	.196 @	.130 @	.257 @	1					
X9	-.665*	.358 @	.018 @	.276 @	.049 @	.035 @	-.091 @	.508 @	1				
X10	.822*	.583$	-.240 @	-.319 @	.017 @	-.051 @	.015 @	-.760*	-.941*	1			
X11	.781*	-.693*	-.841*	-.334 @	-.563$	-.559$	-.579$	-.660*	.333 @	.499 @	1		
X12	.732*	-.755*	.342 @	-.902*	.514 @	.488 @	.486 @	-.466 @	.382 @	.482 @	.420@	1	
X13	.836*	-.739*	.318 @	-.503 @	.168 @	.140 @	.141 @	-.712*	-.768*	.861*	.386@	.572$	1

Source; Computed Field data

"Note; *.$= Significant at one percent level, and five percent level respectively @ = Not Significant at five percentlevel

X1 = Percentage of total literacy; X2 = Disparity index of male - female literacy; X3 = Disparity index of male - female (Rural) literacy;

X4 = Disparity index of male - female (Urban) literacy; X5=Disparity index of rural - urban literacy;X6 = Disparity index of rural - urban(Male) literacy; X7 = Disparity index of rural - urban (Female) literacy;X8 = Percentage of agricultural laborers;
X9 = Percentage of cultivators;X10 = Percentage of other workers;X11 = Percentage of rural literacy;X12 =Percentage of urban literacy; X13 =Percentage of urban population;"

The literacy indices and the block's economic measures have a similar relationship as well. "The correlation coefficient between literacy rate and cultivator proportion is unfavorable and significant (-0.66)". Agricultural laborers' association "coefficient" is both positively and negatively linked to overall literacy (-0.83).On the one hand, the "correlation coefficient (0.82)" between the proportions of jobs "engaged in non-primary" tasks is strongly and "positively" linked to literacy levels. On the other hand, it is negatively related to various formsof inequalities (gender and regional).

As a result of the above, there is a close link between literacy indicators, inequalities, and economic factors, and they are inextricably linked. With the aid of a basic linear regression study, "an attempt is made to investigate the causal association between differences in literacy and measures of economic growth based on these results". The contingent variables were inequality indices (X2 to X7) and literacy rates (X1), while the independent variables were indexes of economic foundation (X8 to XI3). The causal association between the literacy rate

(XI) and "the disparity indices (X2 to X7) as dependent variables were also measured".

The economic measure that substantially describes fluctuations in overall literacy is the "percentage share of workers engaging in occupations other than those in the primary sector. The power of the non-primary sector of the economy emerges as the most significant determinant of literacy rates. Below is the predicted regression equation.

$$XI = 48.35 + 0.294\ X10 \qquad R2 = 0.675 \text{ (Equation 5.1)}$$
$$(16.93)\ (5.19)\ (26.99)$$

The equation's overall explanatory power is about 68 %. The positive sign and statistically significant (t-value =5.19) regression coefficient show that literacy has a 0.29 % positive impact on the proportion of jobs in the non-primary market. It should be remembered, however, that the relationship between literacy and economic base is complicated. Nonetheless, the regression findings explicitly indicate a strong connection between the number of employees employed in the non-primary sector and literacy levels".

The association between "the variables" contributing to the degree of "intra-block" inequalities and the associated literacy levels was also investigated. Complete literacy (X1) was used "as the independent variable, and disparity indices (X2-X7) were used as the dependent variables". Below are the regression equations' approximate values. At the 1% level, the regression coefficients are essential. They demonstrate the connection between the male-female disparity index (X2-X4) and "total literacy".

$$X2 = 0.50 - 0.004X10 \qquad R^2 = 0.82 \qquad \text{(Eq.5.2)}$$
$$(13.97)\ (7.63)\ (58.27)$$
$$X3 = 0.44 - 0.003\ XI0 \qquad R^2 = 0.40 \qquad \text{(Eq.5.3)}$$
$$(7.11)\ (-2.93)\ (8.58)$$
$$X4 = 0.34\ 0.003XI0 \qquad R^2 = 0.38 \qquad \text{(Eq.5.4)}$$
$$(6.19)\ (-2.81)\ (7.88)$$

It is worth noting that the literacy "regression coefficients" in these calculations are "negative". This suggests that "male-female" disparities in "rural" areas are close to those in "urban" areas. Since the literacy rates (X1, X11, and X12) and inequality indexes "(X2-X7) are all positive, the blocks with high literacy levels had low inequalities. In other terms, the study found that as literacy spread, gender and ethnic differences narrowed".

From the preceding analysis, it is evident that there are differences in education between men and women and between regions. Regional literacy disparities were more significant than gender disparities. The gap was smaller while the literacy ratio was higher. In other terms, as literacy spread, disparities between various factors narrowed. Literacy levels were lower (r=- 0.66) in blocks primarily dependent on agriculture, whereas literacy levels were higher (r=0.822) in blocks primarily dependent on non-agriculture. It has been established that there is a clear link between educational inequalities and economic growth indicators.

Conclusions

Despite an upward rise in literacy, the rate of growth in literacy must be accelerated. If the literacy rate is raised dramatically, further attempts, including more resources, must be generated. To achieve educational equality, efforts to distribute education among educationally deprived communities must be taken seriously and well-planned. It reflect on overall development of agri-households such as social, economic, and political dimensions.

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