

EDUCATION AND SOCIOECONOMIC DEVELOPMENT: FINDING THE WAY FORWARDⁱ

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ABSTRACT: *Economic theories within the endogenous growth framework introduced the concept of human capital, which postulates that education is a critical factor to economic growth and socioeconomic development. Another view of human development paradigm states that education level contributes to economic growth through the channels of productivity and social change. Present paper discusses the role of basic education to reduce food insecurity. It is a fact documented in literature that basic education that can help people in enhancing their capacity in developing countries to live a decent life and escape from hunger and poverty. It is achieved through higher awareness on diversification of assets and activities with which they are better able to get information on health and sanitation, further there is a psychological contribution and a role through social relations as well. These entire factors contribute to ensure food security in the long run. There are various channels Specific Objectives of the paper include analyzing whether basic education and higher education help to fight against food security in Pakistan. The proposed study is a combination of theoretical and empirical analysis and it included both the indicators of basic and higher education along with available data on food security variables. Moreover, it intends to apply econometric techniques to find short run and long run elasticities along with short run diagnostic tests. In addition to this, this paper theoretically compares the state of Pakistan with the other countries in South Asian region. In sum, present study is planned to test the validity of the hypothesis that reduction in food insecurity is an important end of development for developing countries. In addition this study presents policy recommendations on the basis of theoretical facts and empirical findings which further helps to find the way forward.*

Keywords: Food Security, Socioeconomic Development, basic educationⁱⁱ

INTRODUCTION

Attaining high growth standards and socioeconomic development in dynamic version is a final goal and nations strive to work on improving their economic development and its inputs. In human development approach [1] and [2] proposed that economic resources are important when the people are better able to convert them into something valuable [3]. Present study starts with a simplest assumption derived from this proposition that economic development is not the final goal, rather there are a number of other ends as well, out of which this study considered *Food Security*. This selection is based upon study of [1] which stated that developing countries of the world are facing deprivations, and against this backdrop, measuring quality of life through income is not a good approach, rather it must be based upon the concept of “*being adequately nourished*”.

Food security has become an issue of extensive debate as mentioned by [4] that there are 800 million people who are food insecure and this phenomenon is affected by many local and international factors. With the passage of time, over 200 definitions of food security and 450 indicators have evolved [5]. The local factors may include the policies formulated by government and their implementation and excluding the food insecure people from the decision and policy making. While the international leading factors include the openness policies, trade arrangements and policies of donors [6]. It is a top agenda as pointed in Millennium Development Goals (MDGs) “to reduce by half the proportion of people who suffer from hunger.” by 2015.

While defining the food security and food insecurity, most widely used definition is presented by [7] according to which “*access by all people at all times to enough food for an active and healthy life*” and food insecurity is “*situation in which individuals have neither physical nor economical access to the nourishment they need*”. Hence A household is said to be food insecure when its consumption falls to less than 80% of the daily minimum recommended allowance of caloric intake for an individual to be active and healthy[4]. According to [8] the most widely used definition of food security is the one forwarded by World Food Summit in 1996 and broadly set as „Food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”[6]. During the mid and late 1970, the idea of food security was introduced in a discussion carried out on a global platform. Initially the focus was to ensure the continuous food supply and control of prices at both national and international levels [8]. However, in the 1980s the attention turned towards the fact that it is a matter of demand side rather than a supply side problem [2]. Following the same stream the focus of paradigm shifted from a national or international level to individual and household level [9].

The concept of human capital as introduced by endogenous growth literature postulated that education can serve as an end to induce economic growth in developing as well as developed countries. Education is an important factor that augments productivity of labor force in an economy, it makes easy the access to resources with raising the level of income.

It is a mean through which benefits of economic growth are distributed and filtered down to low income groups. This is an activity which highly considered as a productive investment that is responsible for human welfare [10]. As discussed by [11] among many other factors, education is a leading factor which determines the status of household food security. Households' head attains education and makes its way to the more awareness and hence brings possible advantages of modernizing agriculture by means of technological inputs, enable them to read instructions on fertilizer packs and diversification of household incomes which, in turn, would enhance households' food supply [12]. Governments of developed nations launch various food aid programs and agricultural subsidies to control the problem and alleviate the food insecurity, but still the developing and poor countries are less successful to do so [13].

SUPPLY SIDE AND DEMAND SIDE DETERMINANTS

Literature documented various determinants as a study by [14] pointed that sex of household head, educational level, age and income as found to affect positively to food security whereas household size has negative influence on household food security. A similar analysis by [15] in South Africa conducted an econometric analysis and found that per Aggregate production, fertilizer application, cattle ownership and access to irrigation have positive effect on household food security whereas farm size and household size have negative effect on household food security.

In sum, there are a number of supply side and demand side factors that contribute to raise or reduce the household food security. Household size and average education level are the leading factors that affect food security. Former has a negative while later possesses a positive relationship with food security as more years of education shift the attitude of people and brings productivity. Further factors mentioned by literature include access to markets and livestock population. On the other hand side, there are supply sides determinants including per capita land holding and technological development as leading factors of food security in developing countries, while among others include farm size, which affects positively to the food security of households in long run and short run. A similar study by [16] highlighted various determinants that lead to problem of food insecurity in poor countries. Major of these factors include social and political dimension, macroeconomic and political instability, trade policies, disasters, inadequate education, poor health, and the absence of good governance.

EDUCATION ATTAINMENT AND FOOD SECURITY

There is less evidence available for evaluating the relation between education attainment and its link with food security in developing countries. Among other a few studies [17] studies Haman capital approach and the capability approach. Former approach asserts that attainment of education leads to more earning, productivity and increasing national economic growthⁱⁱⁱ. A similar approach by [18] viewed that for the case of agricultural households, more years of education result into increasing food security and productivity growth. While the later approach is concerned with the potential effects of education [19]. This approach is more concerned to the changes in institutions and social set up of households.

A study by [20] sheds light on social impact of education where people with more education are better able to gather information about their environment, food availability and about the health, and nutrition. Even the basic (primary) level education can help them getting the information about how to maintain the diet, how to take proper diet, how to treat minor ailment and how to avoid illness in the long run. In the same stream of studies [21] found that, female education plays more vital role as they are better able to guide their family members and children about their nutrition and hygiene information.

Many functions that education plays while promoting the food security include: firstly, it acts as an agent who boosts the poor to compete and raise their income through finding job or improving their living being. People with educated background are goal oriented and possess positive objectives of life. Education of mother and nutrition education also have a significant agency effect here [4]. Secondly, a social benefit quenched through education includes the improvement in social relations where people enter into a more cooperative and extensive social network. This network may help to improve his overall living and assist in emergency situations. Thirdly, a psychological contribution that is provided by education, where education instigates the motive of self-confidence. Last but not the least, education works to reduce food insecurity through its role as an economic production channel. Agriculture productivity and efficiency goes up by many sources [3].

REVIEW OF PREVIOUS STUDIES

[10] conducted a similar analysis for the rural population of Bangladesh. The study after an extensive field survey found that a positive link between education and socioeconomic development does exist. This development comes through the enhancement of their personal competencies, and more employment opportunities and income level. Moreover, it concluded that high grade education brings awareness about the national life, community life and family life. A critical finding of the study suggested that people with low income level are more prone to the illiteracy and similarly people having higher education are high income earners and save more. Overall study suggested that high education level has a self propelling effect on socioeconomic and sustainable development. In the context of Bangladesh an implication drawn from analysis stated that in rural areas more education wipes out human resources and castes a negative impact on the development of agriculture sector.

[22] suggested that education level is a demand side factor and it affects positively to the food security. The study concluded this after an empirical analysis, using probit model for African country. It suggested that awareness and education level shifts the attitude and brings productivity of households. [6] investigated the issue of food security and evaluated the marginal impact of its determinants for the economy of Ghana. The analysis was carried out through structured interviews conducted for a sample of hundred households and econometric technique of logistic regression yielded that household with larger size are more food insecure compared to small sized. Other factors including farm size, off farm income and access to credit have positive and significant impact on food security.

[14] In an analysis conducted for developed nation of Canada over the years 2005-2010. The study found that food insecurity was common among the households with single parents, smokers, renters, less literate people, possessing chronic diseases, and where gambling occurred. The major policy suggestions include the provision of short term income support and treatment to gambling and other problems. Similarly, [23] studied the status and determinants of rural household in Ethiopia. It was found that approximately 70% households have been suffering with the problem of food insecurity. Among the major components of total annual per capita income, cultivated land holdings, and population of livestock had a positive impact on status of food security while, household size have negative impact of food security.

[24] studied rural household food insecurity and its determinants in Nigeria. Structured interviews and questionnaires were used to collect data. While applying the expenditures methods of measuring food insecurity, findings suggested that 70% of households were found to be food insecure. Econometric method of estimation, with application of Logistic regression found that income of household head is a leading significant factor that affects food security status. Another important analysis conducted by [25] for semi arid districts of Malawi to analyze household vulnerability to food security determinants of food insecurity. Semi structured interviews of 200 households and application of econometric techniques showed that access to proper information on climate, land holdings, family size and income level are leading determinants of food insecurity. Further findings focussed on the policy options of equal access to resources irrespective of gender.

A special study very much similar to current study is by [17] which analyzed empirically the relation between the education and food security. The author interviewed two hundred households through questionnaires and collected data on demographic information and socioeconomic indicators. Findings suggested that education is an important determinant of household food security. [26] studied the determinants of household food security for rural landless household of Punjab. A cross sectional study collected data through questionnaires from the field was and it was found that there were 27% household who were found to be food insecure and among many other determinants of food security, household's head age and family size have negative impact with food security. The suggestions regarding the improvement in food security is to raise the education level and looking for the opportunities to raise the means of income generation. [11] investigated the phenomena of food insecurity for Ethiopian economy so that to formulate the strategies to cope the food insecurity. The daily calories availability was taken as indicator of food security status. It was found that 62% of households are food insecure in the region. The major determinants of the study include family size, size of land holdings, number of cattle held, total farm income, off farm income and education level.

The review of previous studies show that still there are a number of dimensions of attaining the socioeconomic development through basic and higher education, which are still pending to discuss for developing economies. Based on

all these studies, this study constructed a theoretical model, that is more similar to the model proposed by [3] stressing the fact that basic and higher education play a vital role for tackling the food insecurity.

OBJECTIVES/ORGANIZATION/LIMITATIONS OF STUDY

Given the introduction and brief review of literature, Specific Objectives of the paper include analyzing whether basic education and higher education help to fight against food insecurity in Pakistan while controlling for other economic and non-economic factors. Following introduction in section one and review of previous studies in section two, section three is description of theoretical trends of food security in Pakistan and section four presents methods and materials, results and its interpretation is given in section five and the similar section concludes the study . There are a few limitations of study as due to limitations on data availability, study could not incorporate climatic, political, ecological conditions and natural disasters into the analysis. Secondly, a comparison between rural and urban food security may help to uncover vast realities, but this study did not present this comparison.

THEORETICAL TRENDS, EDUCATION AND SOCIOECONOMIC DEVELOPMENT

Among the low income developing countries, Pakistan is experiencing the increasing trend in population growth. A forecast [27] stated that with the current population growth, population of Pakistan will get double by the end of 2050. With this, it will get the 4th position in populous nations. Besides the solution of other problems, over the time, there is a need to cope with the problem of hunger and fulfill the food requirements of ever increasing people as a part of MDGs and a pre-condition for enhancing economic development. As suggested by [28] food security and economic growth interact with each other to boost the pace of socioeconomic development. A study conducted by [29] analyzed the issue of food insecurity and presented a broad classification of population into five food security zones including extremely food insecure, very insecure, less insecure, and moderately secure and reasonably secure zone. Following this classification, among 120 districts approximately 40 were extremely poor and insecure. Majority of these lie in Baluchistan and NWFP^{iv}.

In case of Pakistan factors responsible for food insecurity include scarcity of water resources and irrigational facilities, increased pollution due to less water flow, droughts, untreated waste water utilization in agriculture, intrusion of salt water, water borne diseases, gender inequality, employment and income diversification, nutrition education and unequal land distribution. As discussed by [25] while discussing the root causes of food insecurity in Pakistan, pointed towards the prevalence of informal Institutions in country may pose serious threats of food insecurity, corruption, financial and trade openness, subsidies to agricultural sector and governmental policies towards food security among the leading root causes.

Pakistan has achieved self-sufficiency in food production. Compared to 1960 in 1990 the per capita availability of cereals grains rose up to 120 kg to 137 kg. a recent survey

showed that it is approximately 160 kg now a days. After the implementation of structural adjustment program, authorities have put all efforts to maintain the level of 2400 Calories per person per day. Another feature in this regard is reducing intake of share of wheat in total available calories and a rising share from animals and other sources [30]. [6] argued that although there has been phenomenal positive changes in aggregate food supply, still there are wide spread malnutrition in the country. This malnutrition has caused 30 % of child death in country in 2001 to 2002. There was 38% underweight child, 37% stunting and 38% of wasting children (Planning Commission and UNICEF, 2004). Another phenomenon of micro nutrients deficiency in Pakistan is a symbol of dietary deficiency, poor mother child nutrition an availability of micro nutrients content of soil have occurred. [30] were of the view that the increasing food availability in Pakistan has not actually been available at household level which may be due to low income and unequal land holding. Moreover poor health condition and low education level have also contributed to reduce food security.

In sum, Pakistan needs to be more technologically advanced country in order to raise agriculture output. Moreover there is a dire need of institutional changes, educational enhancement, access to credit and establishment of market economy [31]. Furthermore initiative for enhancing research and development, infrastructure development and promoting managerial capability of former also required for increase in total factor productivity.

METHODS AND MATERIALS

A sample of 200 households has been chosen on the basis of proportionate sampling technique. The required information is collected through structured questionnaires containing open ended and closed ended questions. The data has been collected through the correspondents who systematically collected information regarding food security indicators, land holdings, size of households, calories intake, expenditures and income. Current study used consumption based rather than income based indicator as a dependent variable of the study. Consumption based measures are preferred over the income based indicators because it is more closer to the utility that is extracted through income, it is free of more measurement errors, and consumption is a better way to measure the long run welfare of the household. Following the approach adopted by [30] the study calculated food security variable using the caloric contents of their utilized food items. Where per capita calorie intake was calculated, and in order to reduce the bias of age and gender, it was adjusted to adult equivalent units. Further the calculated value is then compared with the threshold value to classify household as food secure or food insecure. A dummy variable is constructed while taking value "1" for food secure household and "0" for food insecure household. The independent variables are expressed as:

EDU_p = Dummy, 1 = completed five schooling years and 0 = otherwise

EDU_M = Dummy, 1= completed eight schooling years and 0 = otherwise

EDU_I = Dummy, 1= completed ten or twelve years of schooling and 0 =otherwise

EDU_G = Dummy, 1= completed fourteen or more years of schooling and 0= otherwise

GEN = Gender, Dummy, 1=Male and 0 otherwise.

CAC = credit access, Age = Age of household in number of years, FSZ = Family Size in numbers, FRSZ = Farm Size (Acres), OFI = Off farm income (Dummy, 1= yes, 0 = otherwise), REM = Remittances, HGC = Hygiene Conditions as represented by lack of access to toilet facility.

RESULTS INTERPRETATION

The aim of this study is to quantitatively find the relation between education and food insecurity (a measure of socioeconomic development). I controlled for other economic and non economic variables which have been important in assessing this link. Using the software of STATA, I run an initial regression containing all the variables and step-wise method (General to specific method) deleted the insignificant variables. The model with only significant results is presented here in this section.

Table 1: Parameters Estimates of Determinants of Household Food Security

Variable	Coefficients	Standard Error	Z-statistics
Constant	0.1063904	0.0768826	1.38
EDU_M	0.66510	0.1798645	3.70*
EDU_p	0.294662	0.1480711	3.34**
EDU_G	0.001671	0.019686	1.84***
Household Size	-0.012642	0.1441447	-0.09
Credit Access	0.168596	0.0364941	0.96
Gender	-0.240129	0.0301742	-7.96*
HGC	0.0075545	0.0086196	-0.88
R ² = 0.67			

Note: *, **, and *** shows significance at 1%, 5% and 10 % level of significance

The education variable (middle education) showed a positive and significant impact on food security which is according to the theoretical consideration. Z-stat shows that variable is highly significant in determining the status of household food security status. Among the education variables, basic education (up to the middle standard) has plays a strong highly significant role in determining the food security, this result shows that at least this level of education is necessary for household to bring the awareness about the food security in the selected category of the household, these findings are in line with the findings of [30] for Pakistan. A negative and significant impact of gender on food security shows that education of a male household's age is less determining and improving the food security compared to the education of a female head of a family. Household size shows a negative link with the status of food security as supported by the early studies. The study may be right to conclude that increasing a household member by one may increase the chance of becoming more food insecure by 12 %. Similar kind of findings has been reported by [31]. The hygienic conditions also play a significant role but the very small coefficient value shows that it has a minimal impact. Household income

and credit access have positive impact on status of food security but this effect is insignificant.

CONCLUSION

The study conducted to find the major determinants of food security in Pakistan with a special focus on education level, both basic and higher education. The analysis found that 21% of the household are food insecure and rest of others are food secure. In sum, the findings show that education level variable (both basic and higher education) plays a positive and significant role in determining the food security and hence bringing up the socioeconomic development by both the aspects, i.e. theoretically and empirically. However, middle education is more related in this context compared to the higher education. Education is an important contributing factor to the growth of a society and brings a positive and healthy way of life among the least advantaged people. So here this study suggests investing in middle education of rural areas of Pakistan to cope with the challenge of food insecurity. There is a room space for generating the income opportunities for households so that it may contribute as an important factor. In addition to all these factors, making the credit access easy to rural household may also help these household to save more or invest in productive way to contribute into the economic development. Future directions of the study include considering the political, ecological and disaster related indicators into the analysis to get some deep insight into the problem.

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