Impact of education on rural poverty: a review of literature

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Abstract— *Rural poverty is a concept of deprivation of basic needs in the rural area which is a geographic area located outside cities and towns. In order to have a long term solution to such a deprivation of needs in rural human being, education would be a sustainable strategy. Although for the last few decades, many subsidy programmes were introduced in order to alleviate rural poverty in Sri Lanka, still the rural sector in the country has poverty. However, there is a structural change in the rural sector due to either subsidies or free education system. Hence, the objective of this review is to explore how lack of education impacts as a barrier for expanding the horizons of income, consumption and standard of living in the rural sector in poverty as identified in the literature.*

Two hundred sixty nine (269) journal articles were referred in the last 20 years in order to grasp the real gravity of the problem of poverty in the light of education as a desk research. The objectives guiding the analysis of literature were to understand the relationship between education and poverty, identify the existing barriers in the field of rural education and the impact of the lack of resources in the rural sector to rural education, identify the impact of parental education to education of rural youth, discuss the relationship among education, human development and rural agricultural productivity and to observe the employability of rural youth due to education. This review is instigated by searching key academic databases using relevant search questions. The literature suggests that there is an inverse relationship between education level of the rural and the level of rural poverty.

Keywords— **Poverty, Education, Human development, Labour productivity, Poverty alleviation,**

I. INTRODUCTION

Knowledge starts from education; education starts from school. The education has a major impact on empowering ones' capacity building like; earning power, knowledge power, human development power, creativity power and innovative power. Due to all these reasons, in case of rural sector, education can influence on agricultural productivity, farm income, non-farm income in order to enhance their income to avoid them from falling into poverty category due to education.

II. THEORETICAL REVIEW

A. Concept of poverty

The definition of poverty is still subject to criticisms as its dimensions are wide and complex and the face of poverty and its impacts vary between regions, countries, communities and individuals (Cahn 2002). Various approaches to the definition of poverty have been derived in terms of 'economic well-being', 'income level' (per capita/ household income), 'consumption expenditure', 'nutritional intake' and 'inability to meet market condition'. Peiris (2000) indicates 'poverty' is absolute deficiency in the supply of the minimum survival needs, relative deprivation, marginalization in access to resources and denial of the benefits of development.

B. Rural Sector

Village is a remote area with plenty of biological, economical, geographical, sociological diversities. Some remote areas have the advantage of being yet un-spoilt by excessive human habitation and still preserve their pristine beauty (Wickramasinghe, 2010). The river, as well as the surrounding forest and agricultural land, are inextricably linked to the culture, history, economics, and ecology of the rural sector (Budge, 2006). Budge (2006) further articulates that the rural is a place with the six habits or practiced ways of living, which are (a) connectedness, (b) development of identity and culture, (c) interdependence with the land, (d) spirituality, (e) ideology and politics, and (f) activism and civic engagement. But he himself admits that the rural is a place with isolation, oppression as a lived experience, historical tension regarding purposes of rural schooling, and outmigration which appear to be aspects to be considered in order to build students' confidence and t0 expose them to options and opportunities for their future.

C. Education

"Education means acquiring knowledge. Formal education, usually known as schooling, is the process of transferring knowledge and skills from one generation to the next"(Janjua et al 2011) pp. 156). Weir (1999) in the study of 'The Effects of Education on Farmer Productivity in Rural Ethiopia' identifies that education is in three types: "Formal, non-formal and informal. Formal schooling is usually the term education. Non-formal education includes agricultural extension, apprenticeships and training programmes. Informal education means wide range of

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experiences, including 'learning by doing' and migration or other activities which provide exposure to new ideas and facilitate learning. While formal education enhance people's cognitive skills and abstract reasoning ability along with changes in attitudes, non-formal education foster specific information needed for a particular task or type of work. But informal education direct people to form attitudes, beliefs and habits" (p.4).

D. Agricultural Productivity

Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs. This output value may be compared to many different types of inputs such as labour and land (yield). These are called partial measures of productivity. Agricultural productivity may also be measured by what is termed Total Factor Productivity (TFP). This method of calculating agricultural productivity compares an index of agricultural inputs to an index of outputs. This measure of agricultural productivity was established to remedy the shortcomings of the partial measures of productivity; notably that it is often hard to identify the factors cause them to change

III. EMPIRICAL REVIEW

Wouterse, F. S. in 2006, conducted a study on how far migration and employment influence on rural household income under the research title of 'Survival or Accumulation: migration and rural households' in Burkina Faso. As the sample, he basically used 223 households as the cross-sectional data. He has illustrated them as a conceptual framework as shown in the following illustration. It shows how far labour capital makes an interactive role in developing migration, non-farm opportunities and farm opportunities so as to increase income by means of remittance, non-farm profit and farm profit respectively to find out their subsistence or capital expenditure in order to utilize them for consumption and investment requirements.

The researcher's mainly concern is to see how far education might change their contribution to increase the income them to be away from poverty. Hence education can make the labor as a resource or capital as per Wouterse (2006). Most importantly, without having a better education, none of the below subcomponents as shown in the following figure: 1 cannot be accomplished successfully. As an example, managing farm and non-farm, consumption and expenditure, sustainable resource development and etc. are absolutely impossible without having better educational support.

As per Wouterse (2006), people use their knowledge in order to enhance their labour resources, land resources and capital resources more effectively to enhance the utilization of farm, non-farm and migration (employment) more efficiently to increase their income sources (such as profit from farm and non-farm opportunities, remittance

from migration and remuneration from employment) in order to make sure consumption and capital expenditure. Then only household welfare would be arrived. Household welfare is nothing else but one of dimensions of poverty, ie, standard of living. As per Wouterse (2006), the level of people's knowledge and the amount of information holding by the people would influence on the level of welfare. Therefore it can be deducted that the education as a source of information and knowledge, it has a positive impact on poverty through standard of living.

Wouterse (2006) believes that the rural sector receive the income from only three sources like remittance from immigration, profit from non-farm activities and profit from farm activities. However, the remuneration taking from the employment has not been concerned by Wouterse (2006). On the other hand, he claims that instead of education, accessibility to information might open up the source of income to rural sector. But education can facilitate the information flow to rural sector more than the other source. However Wouterse (2006)' concern on the importance of education as a source of information is not clearly indicated. But his concern on far how farm income, non-farm income and remittance have an impact on rural sector welfare or standard of living is obviously visible in his conceptual framework. Therefore it can be deducted that farm income, non-farm income and remittance are the outcome of better information flow from education.

Besides, Beaulieu, L. J., & Gibbs, R. (2005) conducted a research under the title of 'The Role of Education: Promoting the Economic & Social Vitality of Rural America'. Their basic concern was to analyses how far the return on education impact on rural sector. Mainly they have illustrated the importance of education for few of issues in rural sector as below.

Beaulieu & Gibbs (2005) refer that the outcome of education empower the rural to strengthen their labor productivity, social capital, better networking, better entrepreneurial attractiveness and etc. to improve the status of employment and level of rural income.

At the end they conclude based on their studies that an increase in the share of adults with some college was associated with more rapid employment and per capita income growth rates in rural areas. Beaulieu & Gibbs (2005) points out that the source of social capital and human capital is the level of education in the rural sector by which the non-farm opportunities, farm opportunities, level of employment and level of migration are dependent upon.

The study made by Beaulieu & Gibbs (2005) claims that education has the possibility to increase, labour productivity, non-farm activities and social capital in order to enhance rural sector income. But he wants to see the impact of education not on rural poverty but the rural
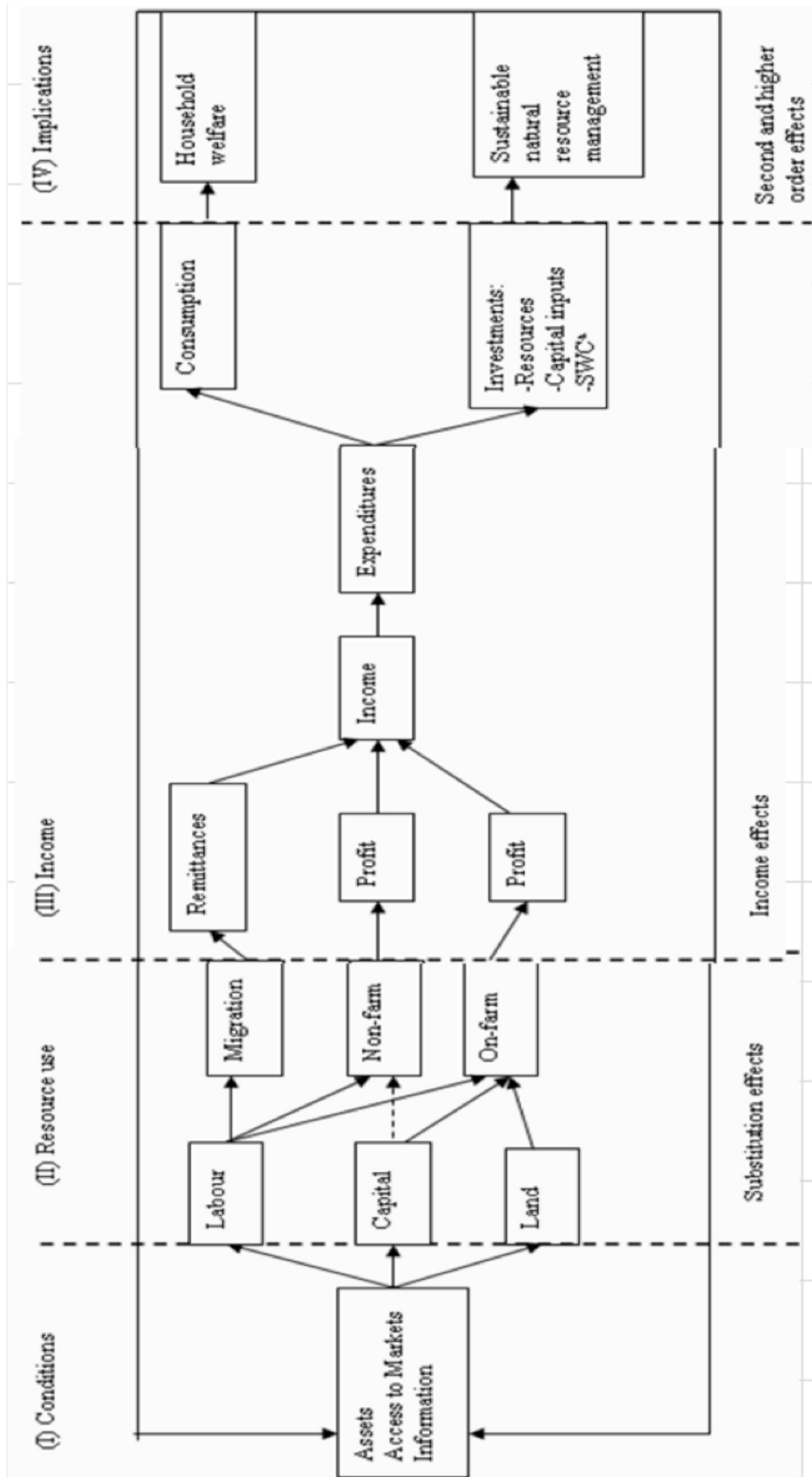
Fig 1. Impact of Labour capital on income enhancement
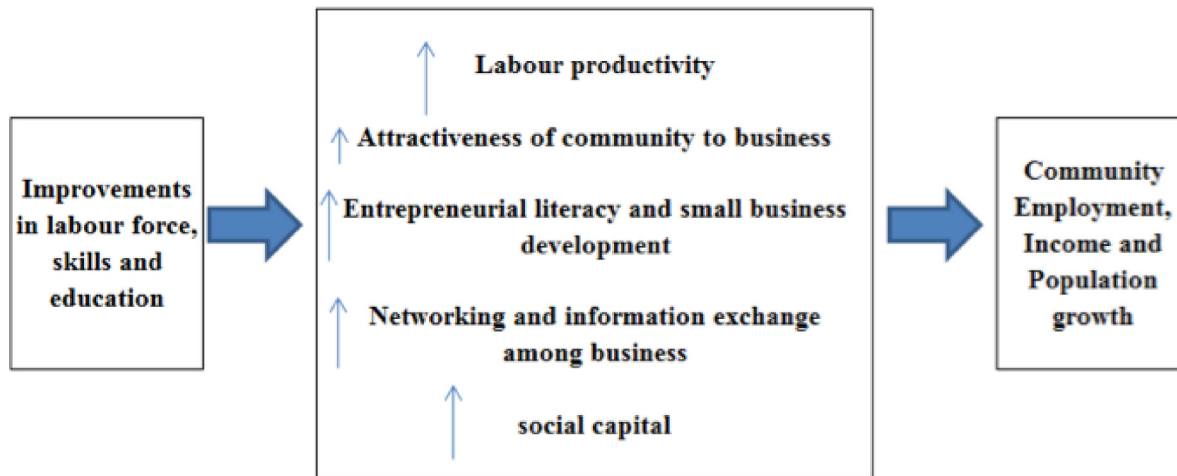
Fig 2. Potential Contributions of Human Capital Improvements to Local Economic Development
Source : Beaulieu, L. J., & Gibbs, R. (2005; p 10) The Role of Education: Promoting the Economic & Social Vitality of Rural America.

sector socio economic aspects. Wouterse (2006) and Beaulieu & Gibbs (2005) both agree that education has the ability to increase rural sector income to decrease the poverty level. Although Wouterse (2006) does not recognize that education can enhance the employment opportunities and the importance of labour productivity, still Beaulieu & Gibbs (2005) points out that employment opportunities and labour productivity are important as income expansion tools to eradicate poverty.

As per Himaz (2012) in his working paper of 'Returns to education in Sri Lanka: A pseudo panel approach' to Oxford University, used cross sectional data in 1997 to 2008 from the individuals who born in 1953 to 1974. As the empirical model, they used the Pseudo Panel Approach.

Further as Himaz (2012) indicates that the return to education is based on human capital of which is depend on two factors; i.e that is years of schooling and work after post schooling (work experience). It is as follows;

$$W=\alpha+\beta 0s+\beta 1x+\beta 2x2+2+\varepsilon$$

Earning of a person (W) is a function of number of years in school (s) and the experience (x).

According to Himaz (2012) the years of schooling 1-5 means; primary education, 6-13 means; secondary education, over 14 means education from universities and polytechnics. But alternately, Ranasinghe (2002) in his article on 'Free-education in Sri Lanka. Does it eliminate the family effect' indicates regarding the schooling as a source of human capital indicates that the length of education in the data has been taken in six levels; No education (0), Grade one to Five (1), Grade six to eight (2), Grade nine to ten (3), Passed O/L (4), Passed A/L (5).

The study concludes that an extra year of education increase the income by 5%. But according to their empirical evidences, they have taken only impact of formal education on their studies. No informal or non-formal education has been taken into consideration. But in case of rural sector more than the formal education, the impact of non-formal and informal education is more.

According to the study done by Rolleston in his study on 'Human Capital, Poverty, Educational Access and Exclusion: The Case of Ghana 1991-2006' in 2006, he takes education and experience as the components in human capital. He indicates that education being the source of human capital has an ability to influence the quality of a person in the labour market by which it can increase the household income as well as consumption being both are two dimensions of poverty. As his concern, from such a better income and expenditure of a person, it would increase the economic welfare of a person. As per Rolleston (2006) the increase of welfare or economic strength would again enhance the level of education of the other family members Even though Wouterse (2006) and Beaulieu & Gibbs (2005) categorically identified the rural income as farm, non-farm, employment and migration, Rolleston (2006) recognized it a one block. But the way how education effect on farm is different from non-farm activities. The way how education infleucne on employment is straightforward, but the impact of education on farm is taken place through productivity of which has not been the concern of Wouterse (2006) and Rolleston (2006). Al though Rolleston (2006), Wouterse (2006) and Beaulieu & Gibbs (2005) indicate the impact of education on rural income as a whole, but Rolleston (2006) identified that rural income or poverty has a recursive impact again to education of children. Or else Rolleston (2006) ties to explain that past poor education are a result
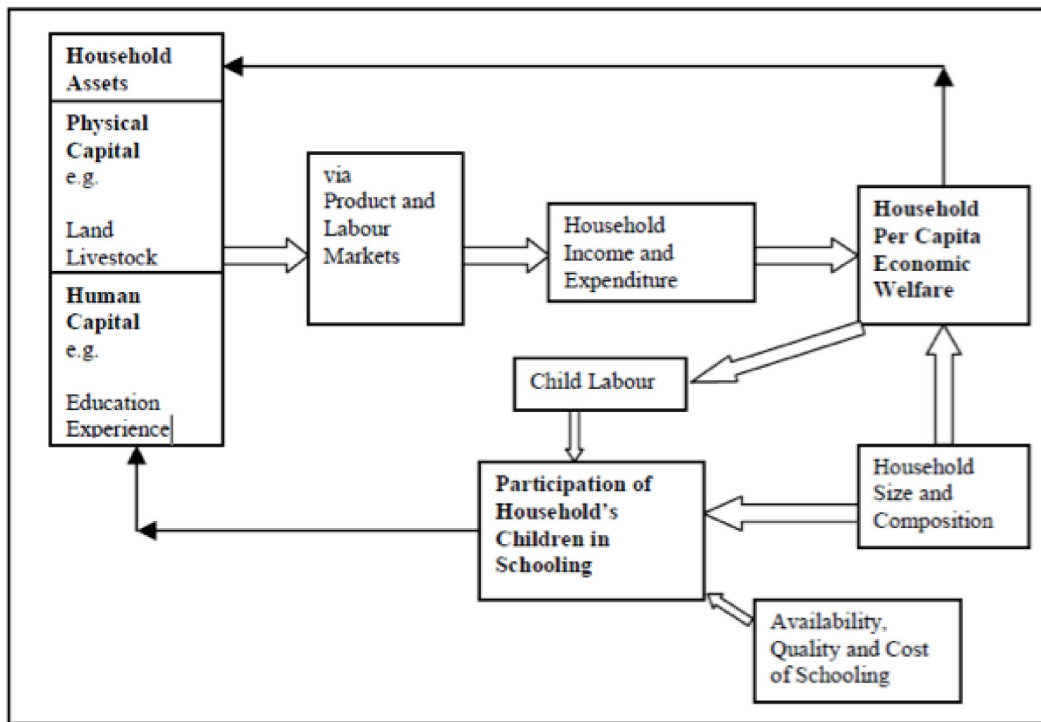
Fig 3. Example of linkages between education and economic welfare

Source : Beaulieu, L. J., & Gibbs, R. (2005; p 10) The Role of Education: Promoting the Economic & Social Vitality of Rural America.

of today's poverty; today's poverty would become an outcome of tomorrow's poor children education. On the other hand even this study also does not wish to see the impact of education on rural poverty but to explore the reciprocal relationships between education and household welfare.

Besides even Awan, et. al (2011) in their study on 'The Impact of Human Capital on Urban Poverty: The Case of Sargodha City' aims to investigate the relationship of different levels of education and experience upon urban poverty using a survey- based analysis was carried out on a sample of 330 households in urbanized Sargodha City. This study indicates that the poverty is an absolute deficiency in education. According to following equation, it indicates that the poverty level of people (Yi) is a function of different level of education and experiences (Xi)

$$Y_i = f(X_{1i}, X_{2i} \cdots \cdots \cdots X_{ki})$$

The above equation shows the relationship between education and poverty level and which can be shown as a regression analysis as shown below.

$$y_i^* = \sum_{j=0}^{k} X_{ij}\beta_j + \varepsilon_i$$

The logistic model was developed for this. Then Pi denotes the probability that the ith household is below the poverty line. X denotes the level of education and experiences.

$$P_i(X) = \frac{e^{\alpha+\beta X}}{1+e^{\alpha+\beta X}}$$

The logistic model has been formulated by them as under mentioned

$$\ln\left[\frac{P_i}{1-P_i}\right] = \alpha + \sum \beta_i X_{ij}$$

$\ln\left[\frac{P_i}{1-P_i}\right]$ is the natural log of the odds in favor of households falling below the poverty line. Xi denotes the educational levels and experience variables. Based on all these, a generalized functional equation has been developed. And for that a univariate method, bivariate and multivariate models were used to see the co-relationships of the variables.

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P = a+ b1Exp+b2Midl +b3Mat+b4 Inter+b5Bach+b6prof+b7Sex+e

P = Poor (1 if poor, otherwise 0)

Exp = Experience (Continues, no of years)

Midle = Middle (1 if individual has middle education, 0 otherwise)

Mat = Matric (1 if individual has matric education, 0 otherwise)

Inter = Intermediate (1 if individual has intermediate education, 0 otherwise)

Bach = Bachelor (1 if individual has bachelor education, 0 otherwise)

Prof = Professional (1 individual has profession (master and above qualification) education, 0 otherwise)

Sex = Sex (1 if individual is male, 0 otherwise)

E = Error Term

Research concludes that level of education and strength of experience has an inverse relationship with poverty. Card (1999) too indicates that education and experience aare negatively correlate with poverty. With the change of level of education or experience, the poverty level also changes with negative with each other, as has been shown below.

As Weber (2007) articulates that the adults who live in a rural area, with higher educational attainment have a direct effect on eventual poverty status by increasing the likelihood of obtaining higher income; even Awan, et. al (2011) also concludes that higher-level of education influence on urban poverty.

According to the studies done by Rolleston (2006), Wouterse (2006) and Beaulieu & Gibbs (2005), their studies are totally about rural sector or rural poverty.

But this particular study is all about urban sector. Many other studies measured the education as the number of years in school or number of years in education; this study measures educational achievements (Middle, intermediate, bachelor and professional). But (Oxaal, 1997) concludes his study that the rural sector poverty is drastically reduced not by other level of educational achievement but only primary and secondary education. He indicates that additional 1 year of primary education can reduce 2.5% rural poverty. Therefore, in case of urban sector, even though the upper educational levels are materially important to reduce poverty; in rural sector, lower level educational achievement would be useful. And also most of the studies on rural poverty and education, they concern more on number of years in school rather than educational achievements.

Again as Card (1999) in his study on 'The causal effect of education on earnings' examines that income is a function of education and experience. In his studies he shows the following equation as the empirical evidence.

$$logy=a+bS+cX+dX2+e$$

Where 'S' indicates the years of completed school education and 'X' shows the years of experience. This is positively evidenced even by Awan, et al (2011) also. Experience has been taken as a quadratic mode. According to Card (1999), human capital is measured in terms of years of completed education. According to above model, 'b' represents "the return to education' or 'internal rate of return to schooling investment'. The article refers that 'years of schooling' had been taken most of the studies done in USA as the measurement indicator of human capital (Card, 1999).

Further the study concludes, that the education and experience have negatively related with poverty. Rolleston (2006) believes that both education and experience form the human capital. Because with the experience which brings both informal and non-formal education along with formal education can forms the level of human capital of

Variables	Overall sample	Male sample	Female sample
Constant	0.919* (2.506)	0.926* (2.523)	1.360* (3.896)
Experience	-0.024* (0.976)	-0.014* (0.986)	-0.038* (0.963)
Education			
Middle	-0.925* (0.396)	-0.975* (0.377)	-0.957* (0.384)
Matriculation	-1.927* (0.146)	-1.796* (0.166)	-2.261* (0.104)
Intermediate	-2.644* (0.071)	-2.740* (0.065)	-2.683* (0.068)
Bachelor	-3.870* (0.021)	-3.706* (0.025)	-4.320* 0.013)
Professional	-4.607* (0.010)	-4.918* (0.007)	-4.492* (0.011)
Male	0.223** (1.250)		

Fig 4. Logistic Regression Model of being poor with multiple independent variables

Source: Awan, et. al (2011); 'The Impact of Human Capital on Urban Poverty: The Case of Sargodha City' (p.12)

which can influence rural poverty as Rolleston (2006) and Kawamura (2011) convey.

But the research done by Card (1999) has not shown how poverty decreases, whether the impact is equally distributed among rural and urban or whether the formal education and non-formal education/informal education are equally influential or not.

Although Card (1999) recognize that education can influence on poverty, it does not clearly indicates for what dimension of poverty (income, standard of living, consumption of poverty) education can influence. But the study made by Zuluaga (2007) clearly indicates the dimension of poverty as income.

Zuluaga (2007) tries to discuss the relationship between education and poverty in his study on 'Different channels of impact of education on poverty' regarding Columbia as frame worked below. He expects to see the pecuniary and non-pecuniary effects of education on poverty. As he indicates that while non-pecuniary returns to education: resources invested in education bring future returns to individuals, not only reflected in monetary earnings, but also in higher levels of satisfaction of basic needs, the term pecuniary returns refers the effects of education on the income of households or individuals.

As he indicates that the poverty is influenced by education directly and indirectly via income. Although this particular study has been done to poverty as a whole in Colombia, still the relationship of education to poverty directly and indirectly remained alive even in the researcher's study too.

As Sen indicates in his 'capability approach' theory he indicates that an educated man converts his income in to other successful directions such a alleviating poverty due to his capabilities shaped by the education
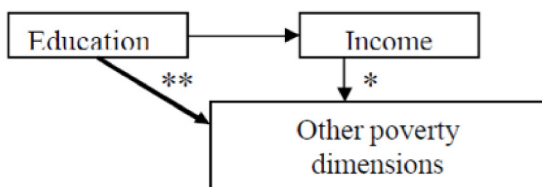

Fig 5. Relationship between education and Poverty
Source : Zuluaga (2007)

Therefore based on his conceptual framework, Zuluaga (2007) developed his empirical model as follows to show how income of house hold (LnY) is influenced by the level of house hold education (E), and other demographic characteristics (Z).

$$LnY_h = f(E_h, X_h, Z_h) \quad h = 1, \ldots N$$

Therefore Zuluaga (2007) claims that the poverty is a function of household education €; Income (Y), and other characteristics.

$$P_{ij} = f_j(E_i, Y_i, X_i)$$

Hence even Zuluaga (2007) too convince the importance of education as a key variable to influence on poverty. But in order to show the overall dimensional poverty (not only income poverty), he has shown the following equation.

$$P_{\alpha,\beta,b}^n (X,z) = \frac{1}{n} \sum_{i}^{} \left[I(x_{i1} < z_1) \left(1 - \frac{x_{i1}}{z_1}\right)^\beta + b^{\beta/\alpha} I(x_{i2} < z_2) \left(1 - \frac{x_{i2}}{z_2}\right)^\beta \right]^{\alpha/\beta}$$

But the researcher does not aim to analyze all aspects of poverty but only the income poverty.

Zuluaga (2007) concludes his study with the following remarks;

"Returns to education are not limited to the pecuniary impact on wages and income. There are relevant non-pecuniary returns, as a result of the influence of education on the behavior and abilities of individuals" (pp.13)

This basically tries to say that education impact on poverty through change of behavior and ability enhancement is greater than enhancing wages and income.

As the dependent variable Zuluaga (2007) has taken the poverty headcount ratio, this ratio cannot be applied to any studies where individual data are used (E.g. to see the impact of education on individual poverty) because poverty head count ratio is an indicator of poverty to assess the level of poverty in a certain group of people. Zuluaga (2007) has not clealrly indicated which sector poverty is to be monitored-whether rural, urban or sub-urban. Although the education is a universal one, its impact to urban (Awan et al 2011) is quite different than rural (Awan 2011) and Oxaal 997). As an example, higher level educational achievements are material factors in alleviating urban poverty, but lower level of academic achievements like, primary and secondary schooling years are important to assess the rural poverty.

Swaminathan and Findeis (2004) further articulate about lower level of education and its impact on poverty. They points out that the higher concentrations of high school graduates and those with some college or vocational training can contribute to lower poverty rates than where lower levels of education were more predominant. As Swaminathan and Findeis (2004) indicate, the regions with the highest college completion rates did not show appreciable differences from those with higher concentrations of the very poorly educated. They basically try to point out that only higher education has an impact to poverty not the other lower level of education.

As the measurement criteria of education, Swaminathan and Findeis (2004) mainly focus on educational attainment

than just completion of years. But most of the researchers in education research side, they have taken core variable to quantify the education level of a person by means of the numbers of years in school or otherwise school completion ratio. According to Swaminathan and Findeis (2004), that base need to be further reviewed.

Francesco Burchi and Pasquale De Muro in year 2007 has completed their research on 'Education for rural people: a neglected key to food security' on a working paper. The objective of the study is to see the impact of education on rural poverty in terms of consumption poverty of food security. This study has based 48 countries as the sample and cross sectional data as the data source.

De Muro et al (2007) have measured the education by means of school attendance not based on numbers of years completed as have been the concern of Rolleston (2006), Wouterse (2006) and Beaulieu & Gibbs (2005) on their studies. De Muro et al (2007) define the term Food Security according to World bank as "when all the people, at all times, have the physical and economic access to sufficient, safe, nutritious food for a healthy and active life ". It has basically four aspects. (a) Foods should be availability; (b) Food should be physically accessible (distances, infrastructures, transportations). (c) Food should be economically accessible (sufficient income should be there to receive the food) (d) Food should be available for different requirements. Therefore income of the people plays a huge role in making economic possibilities to avail the food. Moreover, if income is sufficiently available, all other requirements as shown above, (a), (b) and (d) are manageable.

Further this study reveals that the school attendance as a measure of education has an inverse relationship with rural food insecurity.
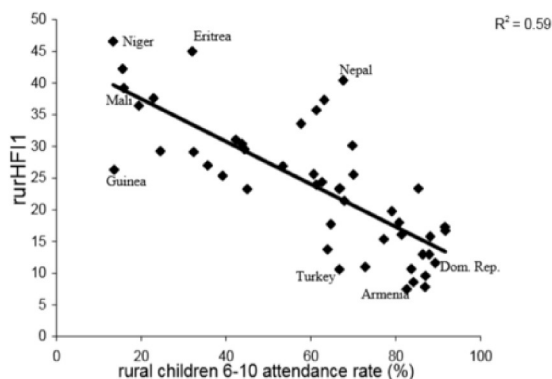

Fig. 6 The relationship of school attendance with food insecurity Source : De Muro et al (2007); Education for rural people: a neglected key to food security'. (p.18)

This research concludes that education and rural poverty in case of food insecurity is always visible in developing countries. And the study highlight that education is the shield to fight with consumption poverty in developing countries. But before rural people face to poverty in terms of food insecurity, they confront the income poverty. Hence this it deduct that poor education directs people for food insecurity (consumption poverty) and income poverty.

This study is not a country specific study while all the other studies are country specific. As this study based on mostly second hand data, the generalization to a specific locality or for an individual is not possible. In addition to that, as the school attendance is the independent variable to see the impact of it on food security, this study focus only students' food insecurity, not in the total rural sector.

Awan, M. S., Malik, N., Sarwar, H., & Waqas, M. (2011) conducted a research on 'Impact of education on poverty reduction'. This study primarily aims at to see the effect of different level of education and experience on poverty in Pakistan. As the study use experience and education to gather as the independent variables, alternatively they expect to see the impact of human capital on poverty; for which they have used logistic model with probability approach as the empirical evidence. The study uses household data as the cross sectional data in the years of 1998 and 1999. As the dependable variable, the study has used the probability of an individual being poor and a set of educational levels, experience and gender as independent variables. The study concludes that income growth impacts on alleviating poverty positively while education significantly influence on poverty alleviation.

Further, in the study Awan et al (2011), have taken the experience variable by subtracting the years of schooling and school starting age from the age of a person. But the problem is that the period with no engagement in any of employment is taken as the years in experience.

Although this study has been done to see the poverty as a whole in Pakistan irrespective sectors like rural or urban, the research concludes that there is an inverse relationship between education and the probability of being poor. Or else, the study hypothesize that the experience and educational achievement are negatively related with the poverty incidence. Throughout this study, Awan et al (2011) try to link the concepts of education and human capital variable as parallel concepts, but these two are not parallel concepts but integral concepts as literature reveals. That education is a component of human capital. Or otherwise, education is a sub-set of human capital set. As an evidence as Janujua et al (2011) indicates that "the stock of people with knowledge and skills is commonly known as human capital, and the basic source for acquisition of human capital is formal education " (p.156).

As per the research conducted by Kawamura, Y. in 2011 regarding 'The Role of Human and Social Capital on Small

Enterprise Growth: Evidence from Sri Lanka' aims to assess the impact of human and social capital on firm growth and to see the impact of human capital and social capital to enhance small enterprise growth. They have collected cross sectional data from 97 manufacturing firms.
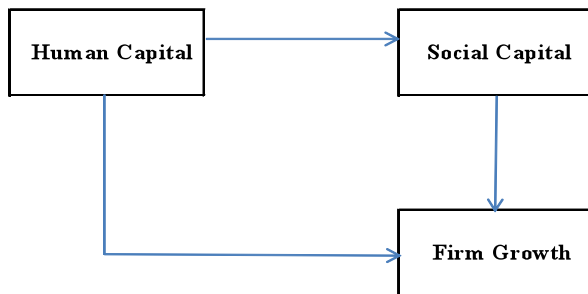

Fig 7. Impact of Social capital and Human Capital on Firm Growth

Source: Kawamura, Y. (2011). The Role of Human and Social Capital on Small Enterprise Growth: Evidence from Sri Lanka

As the empirical model, they have used exploratory factor analysis using the principle factor method with varimax rotation which can be used to identify the underlying factors of human capital and social capital dimensions. In case of indicators of human capital: formal education, acquisition of technical and craft skill, years of work experience in same field or land different field, previous ownership experience in same field or land different field, training received, family background and technical skills of employees. Educational background is measured by using a 6-level scale, as: I=Did not go to school, 2=Primary school «OIL), 3=GCE OIL pass, 4 = GCE AIL pass, 5 = Degree (first Degree), 6 = post graduate degree. Regarding technical and craft skills are drawn through different sources; technical college, professional education, previous job, family tradition and self-learning. On the other hand, prior work experience has been categorized under three types: namely, work experience in the same field, work experience in different fields and the work experience as a government employee. Next the concept of Social capital has been concerned as personal-social networks, organizational networks and supportive networks with the measurement is done on the basis of the size of each network or else by counting the number of members in each network. As the data variables, they have taken; the average number of telephone calls they had given per week, the average number of annual cards sent per year, the average number of e-mails sent per month to network members, the average number of meetings held and the number of associations in which the entrepreneurs had secured membership.

Concluding, that the research indicates that human capital relates positively and directly to the social capital. In addition, there is a direct effect of human capital on firm growth. That mean both social capital and human capital has impact on firm growth. Most of the previous studies concern that the social capital is a result of education but this particular research tries to indicate that the social capital is a result of human capital. Although this research has no any relationship with the current study of the researcher's outcome, still social capital and human capital are important for the study. On the other hand, as the nature of non-farm opportunities are moreover same as firm, the impact of human capital and social capital to firm is equally influencing on non-farm opportunities too.

As per the research done by Pervez Zamurrad Janjua and Usman Ahmed Kamal on the title of 'The Role of Education and Income in Poverty Alleviation: A Cross-Country Analysis' in 2011, as the sample data they have based panel data from 40 countries in the period of 1999 to 2007. Basically their research was based on two objectives; to see the impact of formal education on the poverty of a country and; to examine the impact of education as a tool in poverty alleviation. As has been indicated by Janjua et al (2011) regarding the relationship between education and poverty, it can be shown as below (Figure 8).

As they indicate that the benefit of education is in two forms as direct and indirect to effect on the changes in people's behavior and to perform intermediate roles in alleviating poverty. As the research indicates that change of human behavior would inevitably impact on change in poverty alleviation also. While, education can directly enhance people's skills, knowledge and know-hows to form human capital in order to improve the productivity of people, education can indirectly facilitates a better awareness and mobility in order to improve people's health, capability and employment. At the end employment opportunities, capabilities and productivity which is strengthened by education improves the growth of people, and thereby reduces the level of poverty. Therefore it can be deducted that education has an ability to influence on poverty directly or indirectly. And also as the level of poverty has an impact again on education level of the individual or his children, education sever as a recursive relationship. This is further evidenced by Oxaal (1997). He realizes that schooling helps to increase the productivity of laborer farmers. Even the earnings of the self-employed are also higher for the educated than for the uneducated'. At the end, a better-educated workforce has higher incomes (Weber et al., 2007) than that of ill-educated.

Further as indicated by Janjua et al (2011), the education not only influence on individual poverty alleviation effort as a private return but also it encourage social returns also which is shown as follows.
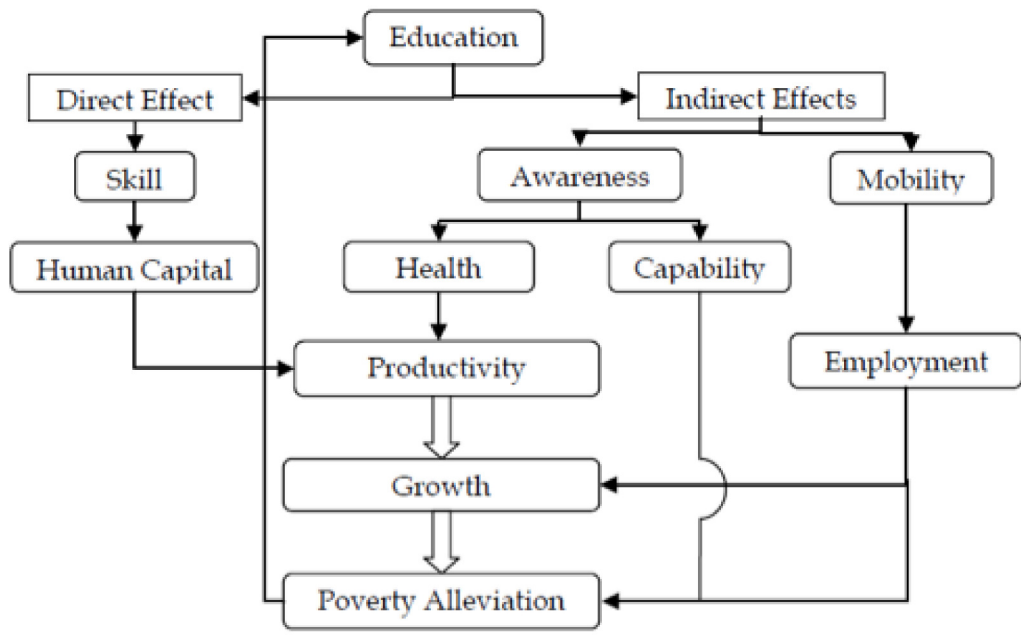
Fig 8. Impact of Education on Poverty Alleviation

Source : Janjua PZ and Kamal UA (2011) 'The Role of Education and Income in Poverty Alleviation: A Cross-Country Analysis' (pp 152)
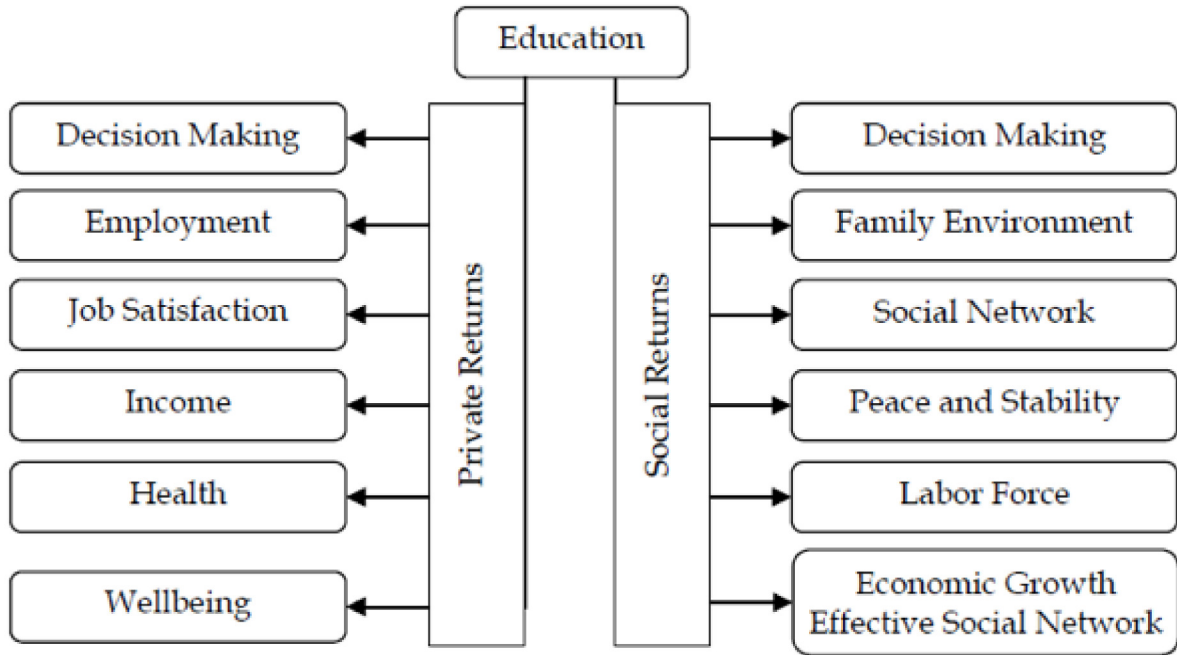

Fig 9. Private return and social return of Education

Source : Janjua PZ and Kamal UA (2011) 'The Role of Education and Income in Poverty Alleviation: A Cross-Country Analysis' pp 153

As Janjua et al (2011) reveals, while education enhance individual's decision making ability, employment abilities, job satisfaction, income enhancement, health and wellbeing aspects, social decision making abilities, family environment, social network, peace and stability, quality of labour force, and economic growth. Or else education can form human capital (skills, knowledge, health) and social capital (social network, family environment). Therefore it can be inferred that education is the source of human capital and social capital)

Their empirical model can be shown as below.

Pit = α0 + α1 PIncomeit + α2 Giniit + α3 NESi(t-1)+ ε

Where;

P   = Poverty level

PIncome = Income effect

 Ginii   = Income inequality

NES   = Net Enrolment Ratio

In this study, Janjua et al (2011) have used poverty as a dependent variable, and income, income inequality, and education as independent variables. The study points out that net enrolment ratio has an impact on poverty as shown below figure 10.
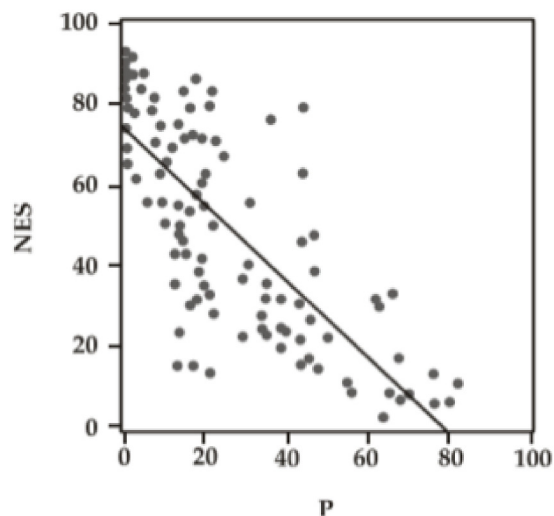

Fig 10. The relationship between Net Enrolment Ratio and Poverty Head Count Ratio
 Source : Janjua et al (2011) 'The Role of Education and Income in Poverty Alleviation: A Cross-Country Analysis'(pp 164)

The research concludes that as education can enhance peoples' earning ability and as such education also can reduce poverty too.

This study has taken education as the independent variable to see its impact on poverty. Janjua et al (2011) takes schooling as an indicator of formal education which is quite acceptable as the other studies also take it as the valid indicator. But in case of rural sector, formal education does a small change when compared with the non-formal and informal education. However, Janjua et al (2011) have not concern the impact of such to poverty. And also as per their definition on human capital, it is all about education. But as per the literature reveals that, although human capital is a blend of education (formal, informal and non-formal) and experience, the experience factors has not been concerned by them at all Janjua et al (2011). As Himaz (2012) indicates that the return to education is based on human capital of which is depend on two factors; i.e that is years of schooling and work after post schooling (work experience). However, the study made by Janjua et al (2011), is quite good for analysis for a specific country or specific locality. It is due to two reasons. As literature reveals that, poverty head count ratio (which is the dependable variable in this study) cannot be based on individual basis, because it is a % of representation of people who are living below the poverty line in a specific area within a specific period. Therefore it is good for a country or regional assessments. The second reason is the independent variable of 'education' has been measured using the 'net enrolment ratio' which is a regional indicator not an individual indicator. Therefore this study is good for regional poverty analysis rather than individual study.

In case of income inequality, Janjua (2011) infers that income and income inequality has a negative relationship. Because with the education, income grows up within the educated people rather than the poorly educated people. Then income inequality broadens. This is further evidenced by even Sharma (1995). Sharma (1995) refers that the education itself acts to increase income inequalities rather than decrease. Although education can have facilitative grounds to smooth out income disparities to a certain extent, aggregate earning of educated than that of not educated can be increased over the poverty line due to impacts of education as the first and prime way of moving out of poverty. At the same time, those who have better education have the high earning power than those who have not so. Thereby income disparity becomes wider.

Purnastuti et. al (2011) in their research on 'Economic returns to schooling in a less developed country: Evidence for Indonesia' claims that one's earning is backed by education, experience, efficiency, and etc. as has been shown as below. They have used sample data from Indonesian Family Life Survey 4 (IFLS 4) and as the model, they have used augmented Mincerian model to measure the private return to schooling. Although this study does not talk about poverty, it talks about income dimension which is the main source of poverty.

$$ln(earnings_i) = \beta_0 + \beta_1 yrschyr_i + \beta_2 expr_i + \beta_3 expr_i^2 + \beta_4 tenure_i + \beta_5 tenure_i^2 + \beta_6 married_i + \beta_7 urban_i + \mu_i$$

Where , yrschyr; is years of schooling, expr; years of working experience, expr2; expereicne squard. β_1 measures the average rate of return to one additional years of schooling. Further as per Purnastuti et al (2011), the increase income associate with extra years of experience has been shown as bellow.

$$\frac{\partial\, ln\, earnings}{\partial expr} = \hat{\beta}_2 + 2\hat{\beta}_3 expr,$$

Where $\hat{\beta}_2 + 2\hat{\beta}_3 expr$ is the point where experience-earning profile is peak. That mean the answer is equal to '0'.

The research concludes that the "return to schooling are 4.6, and 5.4 for male, and female samples, respectively. These results confirm that the returns to schooling in Indonesia are low in comparison with the return to schooling in many other countries, particularly Asian and developing countries"(p.500).

Like, education has ability to reduce the poverty as a root of rural development; but still illiteracy is the main hurdle in the rural development. Rural Development is not all about rural poverty when rural poverty is there, no rural development can be set smooth. At the same time, even though if the rural sector is fully developed does not sense, that no poverty exists.

IV. WHOSE EDUCATION MATTERS?

As Weir (1999) in their research on 'The Effects of Education on Farmer Productivity in Rural Ethiopia' concerns on, whose education is matters mostly to agricultural productivity. Since most of the studies include information on years of schooling of the household head, or average years of schooling of all adult household members, or average years of schooling of only those household members engaged in farming.

Occasionally, average years of schooling attained by all household members are used.

Weir (1999) claims that the way of household education is not ideal, since some household members, such as young children and the elderly, participate less in agricultural production and decision-making than others. Then Weir (1999) argue that only one person need be educated in the household for the entire household to benefit from the cognitive skills acquired in school. Hence, it may be years of schooling of the most educated household member which matters, rather than average years of schooling attained by all household members. This is particularly likely to be the case in terms of the allocative benefits of schooling, such as may be derived from adopting the use of modern farm inputs. Weir (1999) indicates if researchers' wish to evaluate degree of allocative efficiency, education level of all family members to be taken. Otherwise as he says it is no use to take the level of schooling of all members of family other than the head. But some early studies refer that the years of schooling of the most educated member can be taken as the indicator. Anyway as the researcher would like to see the technical and allocative efficiency, he wishes to take average schoolings of all members in the family over 15 years of age.

None of the above studies based on Sri Lanka, but most of them are about other countries. On the other hand, most of the studies are not done regarding rural poverty but urban poverty or general poverty. As the sample data only few studies used cross sectional data for their studies. No study has used simultaneous equation model to test the results. On the other hand most of the studies used numbers of years in school, and academic achievement as the parameter for education. Even the experience also taken as a parameter to see the impact of human capital on poverty. In case of poverty measurement indicators most of studies taken, poverty headcount ratio or categorical data (1=poor, or 0 = otherwise). Detailed analysis is annexed herewith (Table #)

V. CONCLUSION

As literatures reveals that; Education act as a tool for poverty alleviation, Education and human development are interrelated, Education cause agricultural productivity, Education and non-farm opportunity (pluriactivity) are correlated, Education paves the way to employability as an NFA, Education makes the people instrumental for migration as an NFA, Education empower commercialization aspect of agriculture, Education enrich the diversification as a NFA, Education gives non-farm opportunity as an economic indicator to rural sector, Education influences RNA and there by poverty, Education open opportunities for social network, Education work as social enrichment tool, Education and creativity are interrelated, Education and productivity are correlated, Education influence on soil conservation not soil erosion.

While education is positively related with farm income, non-farm income and remittance (Wouterse 2006), Beaulieu & Gibbs (2005) points out that increase in the share of adults with some college was associated with more rapid employment and per capita income growth rates in rural areas. Next Himaz (2012) indicates that an extra year of education increase the income by 5%. But Rolleston (2006) claims that education can increase the welfare or economic strength of the family and again can enhance the level of

education of the other family members. On the other hand Awan, et al (2011) and Card, 1999) hypothesizes that level of education and strength of experience has an inverse relationship with poverty.

Besides Zuluaga (2007) concludes returns to education are not limited to the pecuniary impact on wages and income but even non-pecuniary returns like changes of behavior and abilities of individual are also affected. In addition to that as Burchi et al (2007) consider that education and rural poverty in case of food insecurity is always visible in developing countries. And therefore, the study indicates that the education is the shield to fight with consumption poverty in developing countries.

Awan et al (2011) claims in their study that the income growth impacts on alleviating poverty positively while education significantly influence on poverty alleviation. And further their research claims that there is an inverse relationship between education and the probability of being poor.

In addition to that Kawamura (2011) hypothesize that human capital relates positively and directly to the social capital and both human capital and social capital both impact on growth of non-farm activities. Meanwhile Janjua et al (2011) points out that education can enhance individual's decision making ability, employment abilities, job satisfaction, income enhancement, health and wellbeing aspects, social decision making abilities, family environment, social network, peace and stability, quality of labour force, economic growth, peoples' earning ability. Therefore Janjua et al (2011) in the end claims that education can reduce poverty. In brief as Mincer (1974) explains in his study on 'Schooling and Earnings', the average earning, schooling and experiences are positively related with each other and can be shown as follows.
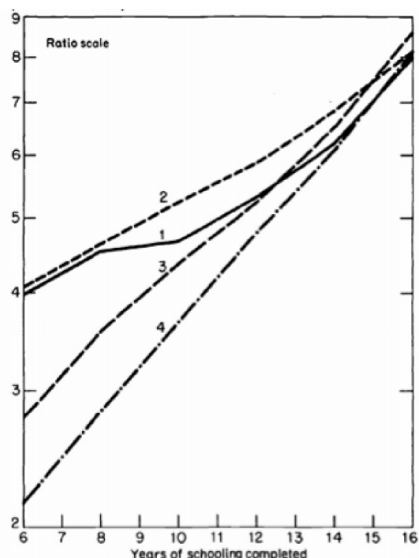
NOTE:
Curve *1*: average earnings of all workers, age 15–64.
Curve *2*: average earnings at age 32–33.
Curve *3*: average earnings with 10 years of experience.
Curve *4*: average earnings with 7–9 years of experience.

Fig 11. The relationship between years of schooling and income-
Source: Jacob A. Mincer (1974) 'Schooling and Earnings' (p.44)

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