Do Female Education and Ownership of Asset Matter for Poverty Reduction in Nepal?

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ABSTRACT
Prevalence of economic and other forms of poverty in every society is a threat for a more equitable and sustainable development of the society. Economic empowerment of women particularly in the Third World nations has emerged as a contemporary issue for gender-balanced and inclusive economic development. The agenda of enhancement of women’s economic capabilities and provision of greater access to education to females for poverty reduction has entered as a fundamental goal of development policy in Nepal. Employing the small area poverty estimate data of the 75 administrative districts of Nepal of the year 2011, this paper analyses the effect of females’ education and their ownership of fixed assets on Foster-Greer-Thorbecke (FGT) class of poverty measures. Results of the ordinary least squares (OLS) regression indicate that females’ education and their ownership of immovable assets have poverty reducing effect in Nepal.

JEL Classification: I32, J16
Key Words: Poverty, Female Ownership of Assets, Female Literacy Rate
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1. Background

In clause I (c) of its Philadelphia Declaration of 1944, International Labour Organization (ILO) formalized the slogan, “Poverty anywhere constitutes a danger to prosperity everywhere” (Dufty, 1972, p.481; Sulkowski, 1951, p.287-288). Today even after 73 years of ILO’s declaration of this slogan prevalence of considerable degree of poverty in many parts of the world has been a problem posing challenge to local and global leaders, development professionals and policy makers. Agreeing that all forms of poverty are a common threat to human prosperity, the United Nations’ Organisation (UNO) under its Millennium Development Goals (MDGs) project (2000-2015) set the objective of eradicating extreme poverty and hunger by reducing it by half at the end of 2015. After the expiration of MDGs project in 2015, the UNO in its Sustainable Development Goals (SDGs) project (2016-2030) has set the goal of ending extreme poverty for all people everywhere.

World Bank (2000) defines poverty as “deprivation in well-being”. Different interpretations have been made upon this definition of ‘households’ or individuals’ well-being. One of the explanations is related to the minimum amount of resource (income) required to acquire the basic goods and services necessary for subsistence. The broadest interpretation originates from Sen’s (1987) idea who contends that well-being springs from a capability to function in society. From this viewpoint poverty becomes apparent “when people lack key capabilities, and so have inadequate income or education, or poor health, or insecurity, or low self-confidence, or a sense of powerlessness, or the absence of rights such as freedom of speech” (Haughton & Khandker, 2009, p.2-3). Viewing poverty from this perspective it emerges as a ‘multidimensional phenomenon’. Multidimensionality of poverty suggests that poverty is comprised of many elements like low level of income and incapability to purchase basic needs required for survival, low levels of health and education, deficient physical security, poor access to clean water and sanitation, lack of voice, and inadequate capacity and opportunity for individuals to improve their lives.

Prevalence of poverty is a great threat to every society and a major cause of social tensions, conflict and division. That is why governments that aim to enhance the welfare of their people take different measures and implement them to reduce different forms of poverty. Governments of Nepal during the Panchayat Regime (1960-1990) under the rule of king incorporated Village Development Programme (VDP) in the First Five year Plan (1956-1961) with the intension of prospering the nation with rapid improvement in economic conditions of the rural poor people. Similarly Remote Area Development Program (RADP) and Land Reform Program were introduced in the second development plan (1962-1965) of the country (Gewali, 1994). The Sixth Plan (1980-1985) adopted basic needs approach to poverty reduction. The Seventh Plan (1985-1990), the last plan of the Panchayat regime, continued the goal of fulfilling the minimum basic needs of the people. The Eighth Plan (1993-1997), the first plan launched after the restoration of multiparty democracy in Nepal with the historic people’s movement of 1990, specifically had poverty reduction as its main objective. The Nineth Plan (1997-2002) also set the main goal of poverty alleviation. Similarly the Tenth Plan (2002-2007) also accorded priority to poverty alleviation. To achieve the objective, the plan targeted to improve the economic, human and social indicators (His Majesty’s Government of Nepal, 2003). The Tenth Plan was itself the Poverty Reduction Strategy Paper (PRSP) of Nepal. Although there was no follow-up PRSP, the Interim Plan (2008-2010) adopted in December 2007(Government of

The two most common methods used for setting poverty lines in developing countries are the Food Energy Intake (FEI) and the Cost of Basic Needs (CBN) approaches, both of which are rooted in a daily nutritional need (Wodon, 1997). Nepal follows the CBN approach to estimate poverty (Central Bureau of Statistics, 2011). The state of poverty in Nepal has changed over the passage of time as revealed in Table 1.

Table 1: Changing Poverty Indicators, Nepal

<table>
<thead>
<tr>
<th>Poverty Index</th>
<th>1995/96</th>
<th>2003/04</th>
<th>2010/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Count Index, FGT(0)</td>
<td>41.76</td>
<td>30.85</td>
<td>25.16</td>
</tr>
<tr>
<td>Poverty Gap Index, FGT(1)</td>
<td>11.75</td>
<td>7.55</td>
<td>5.43</td>
</tr>
<tr>
<td>Squared Poverty Gap Index, FGT(2)</td>
<td>4.67</td>
<td>2.7</td>
<td>1.81</td>
</tr>
</tbody>
</table>


The decrease in the value of poverty headcount rate, depth of poverty (poverty gap), and severity of poverty (squared poverty gap) indicates that poverty is in decreasing state in Nepal. The percentage of people living below absolute poverty line as indicated by the poverty incidence index (headcount rate) in Nepal has declined to 25.16 percent in 2010/11 from 41.76 percent of 1995/96. In between 1995/96-2003/04, poverty as measured by headcount index, FGT (0), declined by about 26 %; poverty gap, FGT(1), in the same period contracted by 36 % and squared poverty, FGT(2), shrank by 42 %. The same poverty figures further declined in 2010/11. The fall in the poverty gap ratio suggests that on the average poor people are moving closer to rising above the poverty line.

Studies have pointed out a number of potential drivers of poverty reduction in Nepal. In the analysis of World Bank (2006, 2011a) big increase in inward remittances since the late 1990s is the main cause of decrease in poverty in Nepal as increased remittances augmented the level of consumption in the country. Asian Development Bank (n.d., p.7) also attributes large remittance inflow as the major cause of poverty reduction in Nepal. In addition to remittance, other potential drivers of poverty reduction in Nepal identified by Asian Development Bank include: growth in agriculture sector and rise in farm income, poverty reduction as the main focus in planned development, greater access to rural finance and increase in microfinance institutions, growth in human capital development, increase in access to facilities such as roads, schools, health posts, hospitals, public transportation, markets and financing. Increase in urbanization is another possible driver of poverty reduction. Nepal has been fastest in terms of urban population growth in South Asia even though the country remains the least urbanized in the region (Muzzini & Aparicio, 2013).
Moreover the issue of economic empowerment of women and inclusive growth also entered in the development policy arena of Nepal. Among others, one of the consequences of the political and legal recognition of this development agenda is the promotion of female’s ownership on assets. There are a number of logical viewpoints which endorse that women’s ownership of assets would strengthen women’s capabilities and reduce poverty. Education of female is also a factor that instills skill and knowledge to women and empowers them which again becomes instrumental in poverty reduction.

On the background described in the above paragraphs the basic objective of this paper is to analyse empirically the effect of female education, female’s ownership of house and land, percentage of children in the total population, and mountain topography on the Foster-Greer-Thorbecke (FGT) (1984) class of poverty measures of the 75 administrative districts of Nepal. To the best of this author’s knowledge, this sort of empirical study has not been previously carried in the context of Nepal, and in the global context too there are limited empirical evidences on this issue. The paper aims to fill this knowledge gap. This paper differs from previous studies on the following respects: first, it considers females education (literacy rate) in poverty reduction; second, it explicitly incorporates the issue of females’ ownership of immovable assets (house and land) in poverty analysis in the context of a least developed country Nepal; third, it takes into account the three poverty indices of the FGT class: FGT (0), FGT (1) and FGT (2) to identify the effect of selected control variables on them, previous studies have considered only FGT (0).

The rest of the paper is structured as follows: section 2 presents relevant literature review; section 3 outlines the theoretical framework, section 4 manifests the sources of data, estimation framework is outlined in section 5, section 6 presents empirical results and discussion, section 7 considers policy implications, and section 8 offers concluding remarks.

2. Review of Literature

In view of the fact that the occurrence of poverty in any corner of the world is a challenge to political leaders and policy makers everywhere, academicians and policy practitioners have made empirical studies to identify factors that affect the multi-dimension-natured poverty. The literature reviewed here considers those empirical studies that have been made after 1990. The focus is on studies that have attempted to link education and ownership of assets to poverty reduction.

One of the studies that incorporates education to poverty comes from Shirazi (1995) who examined the impact of education along with Sadaqat (charity or beneficence) on poverty status of households in Pakistan using the logit model on the data derived from Household Income and Expenditure Survey of 1987-88. The result showed negative effect of Sadaqat, number of earners and educational level of the head of household but positive effect of the size of the household on poverty in Pakistan. Mukherjee and Benson (2003) conducted a simulation study to diagnose the
effect of household level demographic and education variable, employment and occupation, agriculture, access to services and utilities variables, community characteristics and access to services at the community level, and fixed-effect variables on poverty of households of Malawi. They measured by poverty by total daily per capita consumption by using the Malawi Integrated Household Survey data of the year 1997-98. The simulations showed that the effects of educational attainment, especially for women, and the reallocation of household labour away from agriculture and into the trade and service sector of the economy were effective in reducing poverty in Malawi. This study contributed in understanding the structural determinants of poverty in Malawi, a landlocked country in southeastern Africa.

Using cross-country data, Islam (2004) accomplished a macroeconomic analysis of the connection between the incidence of poverty and the employment intensity of growth. He also employed the cross-country analysis to explore the impact of employment and labour market related variables on poverty reduction. The result of the study revealed that structural transformation of employment towards manufacturing and other non-farm sectors, education, and lowering of the dependency burden help reduce poverty in the sampled economies. Using panel data Woolard and Klasen (2005) analyzed income mobility and household dynamics between 1993 and 1998 among Africans in the KwaZulu-Natal province of South Africa. The study documented four types of poverty traps that hamper the poor to moving out of poverty, namely large initial household size, poor initial education, poor initial asset endowment and poor initial participation in the labour market. Among the four traps identified, they found the initial employment situation as the most important factor affecting poverty. Both an increase in share as well as initial share of unemployed persons in the household exerted a sizeable negative impact on subsequent income mobility of the household.

Taking examples from southern African countries to support their arguments, Nhamo and Nhamo (2006) analysed the need to strengthen economic support for (adult) education as a tool for ending poverty. They contend that human capital is one of the major determinants of economic growth, and that this economic resource is in effect determined in both qualitative and quantitative ways by education. An India-specific study analyzing the linkage of post-elementary education, poverty and development comes from Tilak (2007). Using India’s inter-state data of periods 1995-1996 and 1999-2000, the author attempts to show that the general belief on the weak or negligible role of secondary and higher education in development is not convincing and that post-secondary education is important for reduction in poverty (measured by per capita consumption), in improving infant mortality and life expectancy, and for economic growth in India.

In order to find the effect of primary, secondary, higher and university levels education in poverty reduction in Cameroon, Njong (2010) carried a study using cross-sectional data taken from the 2001 Cameroonian Household Survey. From the estimate of a logistic regression model, with the probability of an individual being poor as the dependent variable, the study reported that improvement in experience and educational attainments reduce the probability of
being poor of the employed individual. On the cross-cutting issue of gender effect, the study revealed more power of male’s educational level than female’s education in reducing poverty. Gounder and Xing (2012) estimated the monetary and non-monetary effect of primary, secondary and tertiary levels of education in income–earning and use of other essential goods among the people of Fiji using dataset of Fiji’s Household Income and Expenditure Survey 2002/03. Estimates of income quartile regression indicated that all income quartile households benefitted from education and skills obtained from formal education. The results of the logistic regression for non-monetary models showed positive and statistically significant effect of education in engaging households in health prevention activities and acquiring good housing facilities.

Taking the south-west region of Nigeria as a study area Akinbode (2013) analysed the poverty situation and its determinants among urban households in the selected location using data collected from a survey of 320 households. In addition to computing Foster-Greer-Thorbecke (FGT) poverty index, the study applied the ordinary least square (OLS) multiple regression analysis to identify determinants of household welfare measured by per capita expenditure. The study revealed that household-heads’ education level, household size, household heads’ gender, dependency ratio, and access to credit exerted significant effect on household welfare.

Using panel data of 2005 and 2007 Dartanto and Nurkholis (2013) analysed the status of poverty and its determinants in Indonesia using the ordered logit regression. They used Foster-Greer-Thorbecke (FGT) headcount poverty index ($P_0$) as the dependent variable, and a number of socio-economic and demographic variables including dummies and variables relating to shocks, risks and policy as the explanatory variables. Estimates of the ordered logit model indicated that educational attainment, the number of household members, physical assets (land and house ownership), employment sector, employment status, access to modern electricity utilities and microcredit, and changes in the number of household members, employment sector and employment status were the major determinants of poverty in Indonesia. Better education increased the probability of being non-poor as higher level of education provides greater opportunities for a better job and consequently a higher income. Ownership of land as an indicator of physical assets significantly reduced the probability of being poor. This implied that land reforms aimed at increasing access to land as a productive asset by poor households could alleviate chronic poverty in Indonesia.

Though education is important to everyone, education especially provided to rural women empowers them and help reduce poverty. In a study of the Owa communities in Nigeria Asiyai (2015) finds that provision of vocational training, education on income generating activities and making education relevant to the present and future needs of the rural women helps in poverty reduction.
Poverty is prevalent even in more advanced societies. Making the economy of Taiwan as the unit of study, Chen and Wang (2015) analysed the determinants of poverty considering family-level and regional-level factors. They applied multilevel logit regression model to hierarchical structure. Empirical results indicated that education attainment, socio-economic status, age, family type, dependency ratio, and number of earners were connected to poverty status. The effect of human capital was crucial to reduce the difficulty of the poor. The risk of poverty was higher in female-headed households than in male-headed households. The study observed a significant relationship between poverty and structural characteristics such as economic inequality, economic growth, structural transition, and labour market characteristics.

There is availability of limited empirical evidence on the effect of female’s asset ownership on poverty. One study relating to this issue in the context of Nepal was elicited by Allendorf (2007). The results obtained by analyzing the 2001 Nepal Demographic and Health Survey (NDHS) data revealed that women who possess land are significantly more likely to have their final voice in household decisions, a measure of empowerment, and that children of mothers who possess land are significantly less likely to be severely underweight.

Aasoglenang et al. (2013) made a case study of the Chansa in Ghana in order to find out whether the role of women as farm owners’ enables them to have access to productive farm lands and the returns from farming contribute to the reduction of poverty among them. Based on primary data obtained by interviews and focused group discussion, the study identified land as a key factor of production in the Chansa community which contributed significantly to livelihood assets. However, the lack of ownership, control and full access to land by women in the Chansa community made it difficult for them to cultivate food crops and invest in other projects that could reduce their poverty levels significantly. Focusing on the state of poverty in southern Nigeria, Etim and Edet (2014) conducted a study to identify the link of poverty with asset holdings of the respondents. They based their analysis on the primary data collected from 150 households using the multistage sampling. The study documented large effect of asset-holdings on Foster-Greer-Thorbecke (1984) type of weighted measure of poverty incidence, depth and severity. Households who possessed assets like land, houses, cars, motorcycles and sewing machines were less affected by poverty.

3. Theoretical Framework

3.1 Poverty Indices

Study on poverty indices has received extensive focus since Sen (1976) introduced axiomatic poverty indices and a set of necessary properties for assessing a poverty index (Xu, 1998). Literature documents a number of poverty indices like the Sen Index, the Kakwani and Thon Indices, the Foster-Greer-Thorbecke Index, the Sen-Kakwani Index, the Blackorby-Donaldson Index, the First Clark-Hemming-Ulph Index, the Takayama Index, the Second Clark-Hemming-Ulph Index, and the Leyden Index (Hagenaars, 1986; Seidl, 1988; Xheng, 1997). Each of these indices have their own strength and limitations. One of the widely accepted and used poverty
indices is the Foster-Greer-Thorbecke (FGT) index developed by Foster, Greer, and Thorbecke (1984). The concept of this index is briefly introduced here because the poverty data used in this study are the FGT indices computed by the Central Bureau of Statistics (CBS), Government of Nepal with the involvement of the World Bank. The FGT poverty measure is commonly represented by the following formula (Foster, Greer, & Thorbecke, 1984, 2010):

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^{q} \left( \frac{z-y_i}{z} \right)^{\alpha}$$

where $n$ is the total population (size of the sample), $q$ is the number of poor persons in the sample, $z$ is the poverty line, $y_i$ is the income/expenditure of the $i$th household, thus $z-y_i$ is the poverty gap, and $\alpha \geq 0$ is a 'poverty aversion' parameter.

According to Ravallion (1992) $P_{\alpha}$ is simply the average over the whole population of an individual poverty measure. When $\alpha$ is larger, the index puts more weight on the position of poorest, when parameter $\alpha = 0$, $P_{\alpha}$ simply becomes the headcount index ($P_0$), when $\alpha = 1$, $P_{\alpha}$ comes to be the poverty gap index ($P_1$), and when $\alpha = 2$, $P_{\alpha}$ turns into the squared poverty gap (poverty severity) index ($P_2$). Thus the FGT index shows three facets of poverty: incidence, depth and severity.

The headcount index ($P_0$) measures the proportion of total households below the poverty line. It shows the percentage of poor people/households (incidence of poverty) in the total population. The poverty gap index ($P_1$) measures the degree to which individuals fall below the poverty line (i.e., the percentage gap of the average income/expenditure of the poor from the poverty line); it is an average measure of the depth of poverty which considers how poor the poor are and reveals both the incidence and intensity of poverty (Baye, 2005). As the $P_1$ index shows the average lack of income/expenditure of the poor people, it gives a better understanding of the depth of poverty. One more benefit of $P_1$ index is that it shows how much would have to be transferred to the poor to bring their income/expenditure up to the poverty line (or, the additional income/expenditure needed by the poor to move up to the established poverty line). The sum of the poverty gaps gives the minimum cost of (resources required for) eliminating poverty in a country if transfers are perfectly targeted to the poor with no distortion costs (Ravallion, 1992). This measure, however, ignores the extent of severity of poverty (i.e., it does not uncover changes in inequalities among the poor; it is unresponsive to income distribution among the poor) (Baye, 2005).

The squared poverty gap index ($P_2$) measures the severity of poverty. It averages the squares of poverty gaps relative to the poverty line, and in this manner puts more weight to observations that fail to meet the poverty line rather than those that are closer to it (i.e., this measure takes into account the inequalities among the poor). By squaring the poverty gap this measure gives the maximum weight to the largest poverty gap. The benefit of this approach is that it takes into account both the poverty gap and the inequality among the poor. It is necessary to compute the poverty gap squared index because poverty gap index may not correctly catch the effect of changes in distribution to the poor section of the population. According to Ravallion (1992) the
squared poverty gap index can be considered as the sum of two parts: one owing to the poverty gap, and the other owing to inequality among the poor. Consequently the major limitation of this index is that it is not easy to interpret as \( P_0 \) or \( P_1 \) for informative purposes and hence it lacks comprehending appeal.

### 3.2 Education of Females, Their Ownership of Asset and Poverty

Education is a crucial component of the broad term ‘human capital’. There is a firmly-established conviction that higher the level of education of the citizens of a country, lesser will be the number of poor persons because education teaches knowledge and skills that are helpful in generating more income/earnings (Tilak, 2002). Thus the direct effect of education on poverty reduction works through increasing the actuality and potentiality of earnings of individuals. The indirect effect of education on poverty is important with reference to ‘human poverty’ for the reason that as education improves earnings, the attainment of basic needs becomes easier and this enhances the living standard that is undoubtedly an indication of decrease in human poverty. In this how education indirectly works as an instrument in the fulfillment of individuals’ basic needs like food, shelter, cloth, sanitation, and utilization of health facilities. Moreover attainment of basic education is itself a part of basic needs.

Emphasizing the strength of education in reducing poverty Psacharopoulos and Woodhall (1985, p.287-288) state, ‘Improvement in education can help alleviate poverty both directly and indirectly by increasing income, improving health and nutrition, and reducing family size’. This reasoning is reinforced in World Bank (1995, p.1) when it states, “Education, especially basic(primary and lower-secondary) education, helps reduce poverty by increasing the productivity of the poor, by reducing fertility and improving health, and by equipping people with the skills they need to participate fully in the economy and in society”. World Bank (1995, p.27) further complements:

Education can therefore make a significant contribution to the reduction of poverty. It confers skills, knowledge, and attitudes that increase the productivity of the poor’s labour by increasing their output as farmers and, when discrimination is absent, their access to jobs in both the formal and informal sectors….Education also makes workers in industry more productive and can contribute to entrepreneurship.

Undoubtedly education in general and females’ education in particular is a potential weapon against poverty. There are evidences that girl’s education brings several benefits to households and society. As summarized in Sperling, et al. (2016) girls’ education in developing nations improve children’s and women’s survival rates and health, reduce population growth, protect children’s rights and delay child marriage, empower women in the home and in the workplace, and improve climate change adaptation. As Tembon and Fort (2008, p.xvii) observe, “Female education creates powerful poverty-reducing synergies and yields enormous intergenerational gains. It is positively correlated with increased economic productivity, more robust labour markets, higher earnings, and improved societal and well-being”.

Of late, studies on the link between education and women’s empowerment mostly in the developing countries have identified particular ways in which education empowers women (Aslam, 2013; Mocan & Cannonier, 2012; Murphy-Graham, 2010). Studies have documented that women with higher levels of education are less likely to tolerate domestic violence, have
greater control over household resource decisions, and have greater freedom of movement (Sperling, et al., 2016). Increased female education increases agricultural productivity (Davis et al., 2012; International Food Policy Research Institute (IFPRI), 2005). More productive farming due to increased female education also accounts for a large decline in child malnutrition (Smith & Hadd, 1999). United Nations Food and Agriculture Organisation (FAO) (2011, p.5) estimated, “If women had the same access to productive resources as men, they could increase yields on their farms by 20-30 percent. This could raise total agricultural output in developing countries by 2.5-4 percent, which could in turn reduce the number of hungry people in the world by 12-17 percent”.

In addition to education ownership of and access to economic resources are the critical factors that affect the subsistence of individuals. Asset ownership implies ‘the ownership of land, physical capital (factories, buildings, machinery, etc.), human capital, and financial resources that generate income for owners’ (Todaro & Smith, 2015, p.826). Assets can play an important role in reducing vulnerability, a key aspect of poverty (McKay, 2009). So those who lack assets to begin with are likely to be caught in a poverty trap (Carter & Barrett, 2006). United Nations Department of Economics and Social Affairs (2009, p.41) observes, “Land and housing function as sites of production, stores of value, buffers against contingencies, sources of income and collateral for credit for consumption and investment purposes. They also provide security and define social identity”. In real sense of the term the ownership and control of assets such as land and housing provide direct and indirect benefits to individuals and households (Doss, Grown & Deere, 2008).

Female’s ownership of assets is a basis for reducing women’s economic insecurity and strengthening their hand in the decision-making of resource allocation. The argument in favour of women’s independent control over assets is instituted on the three main elements of welfare: efficiency, equality and empowerment (Agarwal 1996; Alsop, Bertelsen, & Holland, 2006; Deere & Doss, 2006). Alternatively the requirement for women’s independent ownership of assets is defended by linking it to capability enhancement and inclusive development, and by advocating ownership of and access to assets as a tool for poverty reduction (Moser, 1998; World Bank, 2001). The rationale to women’s economic empowerment through ownership of and access to immovable assets and other economic resources spins around the objectives of poverty reduction. In an early work Boserup (1970) indicated women’s important contribution to household survival in poor agricultural economies specifically in sub-Saharan Africa. Later studies show that it is often women’s earnings that keep low-income households above poverty line (Chen et al., 2005). Though there is great debate on whether households headed by women are overrepresented within the poor (Chant, 2003), studies document a strong correlation between household poverty and total or primary dependence on female earnings (Chen et al., 2005; Kabeer, 2008; Sender, 2003).

Action Aid International (2008) remarked that the securing of women’s right to land and livelihoods is a key to ending hunger and fighting AIDS. Signaling to women’s empowerment via ownership of assets, Swedish International Development Cooperation Agency (SIDA) (n.d.) affirms, ‘Women’s access to land and property is central to women’s economic empowerment, as land can serve as a base for food production and income generation, as collateral for credit and as a means of holding savings for the future’ (p.2). Assets are instrumental in strengthening
women’s voice and bargaining power in household decision-making, access to capital, and overall economic self-reliance (World Bank, 2011b). In an analysis based on data gathered from the Kerala state of India Agarwal and Panda (2007) conclude, ‘Immovable property provides a woman economic and physical security, enhances her self-esteem, and visibly signals the strength of her fall-back position and tangible exit option. It can both deter violence and provide an escape if violence occurs (p.359).

Women’s access to and ownership of immovable assets help in strengthening their empowerment and increase their access to a variety of opportunities. For instance, women who have more control over land tend to have greater self-esteem, respect from other family members, economic opportunities, mobility outside of the home, and decision-making power (Rodgers & Menon, 2012; Bhatla, et al., 2006). In a study of rural South Asia Agarwal (1994) identified that disparities in land ownership and control were the most important contributor to inequalities in economic well-being, social status, and empowerment. As such a number of unwanted consequences are inherent in constraints on women’s ownership over land. Studies document that restrictions in ownership can reduce the efficiency of land use (Udry, 1996) and women’s economic opportunities (Quisumbing & Maluccio, 2003), and can aggravate land conflict (Deininger & Castagnini, 2006; Joireman, 2008). Studies provide evidence that women’s access to land and housing can affect girls’ survival rates (Qian, 2008), their nutritional status (Duflo, 2003), and investment in girls’ schooling (Luke & Munshi, 2011) implying far-ranging returns.

4. Data

The data on district level poverty for this study are taken from Nepal: Small Area Estimation of Poverty, 2011, jointly published by Government of Nepal-Central Bureau of Statistics (CBS) and the World Bank (2013). The poverty data are estimates for the year 2011. The available poverty indices are the headcount (HC) ratio, the poverty gap (PG) index, and the poverty gap squared (PG²) index. These three poverty indices belong to the Foster-Greer-Thorbecke (FGT) class of poverty measure (Foster, Greer, & Thorbecke, 1984). There is common practice of representing HC ratio as FGT (0), the PG index as FGT (1) and the PG² index as FGT (2). In the empirical part of this study the fraction of each of the three poverty indices are multiplied by 100 to directly express them in percentage unit (Central Bureau of Statistics, 2011).

The data on total number of households, households by female ownership of fixed assets, female’s literacy rate, and number of children of the age group 0-14 years are taken from Nepal Population and Housing Census 2011 published by Government of Nepal-Central Bureau of Statistics (2012). Females’ ownership of fixed assets include their ownership on house only and ownership of both house and land. All of these data correspond to Nepal’s census year 2011.

5. Estimation Framework

In the empirical works of identifying the determinants of poverty some researchers have applied probit and logit regression models (Dartanto & Nurkholis, 2013; Sackey, 2005) that are specially designed for binary dependent variable. However, the probit and logit models are complicated by the nonlinear nature of the response probabilities, and they are difficult to estimate and interpret (Wooldridge, 2013, p.596). Alternatively the ordinary least squares (OLS) method is also used to examine the impact of selected variables on poverty indicators (Islam,
Following Akinbode (2013), Benson, Chamberlin and Rhinehart (2005) and Islam (2004), the head count index, FGT (0), is made the dependent variable in the regression model which is specified as:

$$FGT(0)_i = \alpha_0 + \beta_1 FEMOWN_i + \beta_2 FEMLIT_i + \beta_3 CHLD_{0-14} + \beta_4 DUM + \epsilon_i$$

(2)

where FEMOWN is the number of households with female ownership of fixed assets (female ownership on house plus female ownership on house and land both) expressed as a percentage of total households in each of the 75 districts of Nepal, FEMLIT is the female literacy rate of each of the 75 districts, CHLD_{0-14} is the number of children aged 0-14 years expressed as a percentage of the total population of each of the 75 districts, and DUM is the dummy variable for mountain region used to incorporate impact of topographical differences on poverty, i stands for a district with i=1,2,…,75, and \(\epsilon\) is the usual stochastic error term.

In equation (2) \(\alpha_0\) is the intercept parameter/constant term and \(\beta_1, \beta_2, \beta_3\) and \(\beta_4\) are the slope parameters of the regression model, which indicate the direction(s) and size of the relationship between the dependent variable and the explanatory variable(s) in the model. Variables ‘FEMOWN’ and ‘FEMLIT’ are the key explanatory variables entered in the estimation following the empirical literature and the arguments offered in the theoretical framework section. Females’ literacy rate is a stock measure of females’ education in each of the 75 geographical districts of Nepal. Drawing upon the theoretical framework the research hypothesis of this study is that females’ education and their ownership over fixed assets have poverty reducing effect. Hence the prior expectation on the sign of regression coefficients \(\beta_1\) and \(\beta_2\) is negative (\(\beta_1, \beta_2 < 0\)).

Instead of using the household size or entire dependency ratio used by previous studies, this study has opted the use of child dependency ratio. Household size includes all members of a household while entire dependency ratio includes population of age group 0-14 years and 63 years and above. The justification for the use of child dependency ratio is that government policy can influence birth rate but it cannot affect the natural ageing of population. The argument is that having few children would help families/households to reduce poverty. In most rural parts of Nepal fertility rate is still high which results in higher child dependency ratio with survival of more births due to extended health services and rising maternity health awareness among people. Growing child dependency ratio translates into falling support ratios (Lee & Mason, 2010); more children in each family/household require more economic resources to raise and care them. Children of age group 0-14 years are a part of dependent population, they contribute more to consumption and less to production and income generation. For these reasons larger child ratio should be positively associated to poverty. Therefore the expected sign of the coefficient of the variable ‘CHLD_{0-14}’ is positive (\(\beta_3 > 0\)).

Nepal is a country comprised of three geographical belts: the mountain, the hill and the terai. Amenities of life are scarcer particularly in the mountain region. So the extent of poverty is different in each of the three geographical areas. Nepal Living Standard Survey (NLSS) 2010/11 report documented a poverty rate (head count rate) of 42.27 percent in the mountain region compared to 24.32 percent in the hill and 23.44 percent in the terai (Central Bureau of Statistics, 2011). On the state and causes of poverty in the mountain region Hunzai, Gerlitz, Hoermann and Kollmair (2010, p.2) describe:
Poverty is widespread and pervasive in the mountains. Factors such as uneven distribution and quality of land, poor access to education and health facilities, low level of infrastructure development, and lack of employment opportunities provide possible explanations for such variation. The generally poor access in mountain areas, the complexity and fragility of mountain conditions, and the marginalization of mountain communities from the mainstream, coupled with climate stresses and proneness to natural disasters, contribute to the high levels of income and food poverty. As a result, mountain people are increasingly exposed to growing physical, social, and economic risks and vulnerabilities.

In order to capture the impact of mountain topography on poverty measures this study applies the dummy (DUM) variable approach. Accordingly a value of ‘1’ is assigned if a particular district is in the mountain region and ‘0’ otherwise. The expected sign of the coefficient of the dummy variable (DUM) in equation (2) is positive ($\beta_1 > 0$) with the reason that highland topography aggravates poverty much.

In this study regressions are also run by making poverty gap (FGT (1)) and severity of poverty (FGT (2)) as the dependent variable on the same set of explanatory variables used in equation (2). The objective of doing this is to know whether the effect of the chosen explanatory variables survives irrespective of different indices of poverty.

6. Results and Discussion

This section first presents the basic statistical features of the variables used in the study. Then it presents and discusses the results of multiple regression equation estimated by using the ordinary least squares method (OLS) on the cross-district data of Nepal.

6.1 Summary Statistics

Descriptive statistics of variables FGT (0), FGT (1), FGT (2), FEMOWN, FEMLIT and CHLD$_{0-14}$ are given in Table 2. These statistics describe the basic features of the data used in this study. The variables related to poverty measures viz FGT (0), FGT (1) and FGT (2) are the dependent variables and other variables are the explanatory variables.

Table 2: Descriptive Statistics of Variables

<table>
<thead>
<tr>
<th></th>
<th>FGT(0)</th>
<th>FGT(1)</th>
<th>FGT(2)</th>
<th>FEMOWN</th>
<th>FEMLIT</th>
<th>CHLD$_{0-14}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>27.66</td>
<td>6.76</td>
<td>2.39</td>
<td>16.36</td>
<td>56.41</td>
<td>36.09</td>
</tr>
<tr>
<td>Median</td>
<td>26.00</td>
<td>5.80</td>
<td>1.90</td>
<td>18.56</td>
<td>57.50</td>
<td>36.09</td>
</tr>
<tr>
<td>Maximum</td>
<td>64.10</td>
<td>19.90</td>
<td>8.20</td>
<td>30.77</td>
<td>79.80</td>
<td>46.86</td>
</tr>
<tr>
<td>Minimum</td>
<td>4.00</td>
<td>0.80</td>
<td>0.30</td>
<td>1.93</td>
<td>32.30</td>
<td>21.58</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>13.42</td>
<td>4.16</td>
<td>1.69</td>
<td>7.97</td>
<td>11.14</td>
<td>5.41</td>
</tr>
<tr>
<td>Sum</td>
<td>2074.80</td>
<td>506.90</td>
<td>179.80</td>
<td>1226.74</td>
<td>4230.90</td>
<td>2706.55</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>13318.25</td>
<td>1279.14</td>
<td>213.7195</td>
<td>4703.34</td>
<td>9190.49</td>
<td>2161.72</td>
</tr>
<tr>
<td>Observations</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

*Source: Author’s calculation*
From Table 2 it is apparent that though the standard deviation of all the variables is lower than their corresponding mean none of them is close to zero. This suggests that the data points are not pretty compactly clustered around the mean but are spaced out over a wider range of values. The variables are therefore heterogeneous or dissimilar. Again as the mean and median of the variables are different, the dataset are not normally distributed, they are skewed in some way.

Though correlation between variables does not imply causation, it indicates the direction and degree of association between variables. The correlation among the variables of interest of this study is given in Table 3.

Table 3: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>FGT(0)</th>
<th>FGT(1)</th>
<th>FGT(2)</th>
<th>FEMOWN</th>
<th>FEMLIT</th>
<th>CHID_{0-14}</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGT(0)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FGT(1)</td>
<td>0.991</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FGT(2)</td>
<td>0.977</td>
<td>0.997</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEMOWN</td>
<td>-0.790</td>
<td>-0.783</td>
<td>-0.774</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEMLIT</td>
<td>-0.682</td>
<td>-0.642</td>
<td>-0.614</td>
<td>0.533</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CHID_{0-14}</td>
<td>0.652</td>
<td>0.611</td>
<td>0.579</td>
<td>-0.603</td>
<td>-0.650</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Author’s estimation

From Table 3 it is obvious that there is dissimilar degree of negative and positive association of the three poverty indices FGT (0), FGT (1), and FGT (2) with the explanatory variables FEMOWN, FEMLIT and CHID_{0-14}. The rule of thumb for interpreting Pearson’s correlation coefficient are prescribed as follows: 0 to ± 0.20 is negligible, ±0.21 to ±0.35 is weak, ± 0.36 to ± 0.67 is moderate, ±0.68 to ±0.90 is strong, and ±0.91 to ±1.00 is considered very strong (Prion & Haerling, 2014; Taylor, 1990). On this criteria the size of correlation of FGT (0) with FEMOWN and FEMLIT are -0.790 and -0.682 respectively which could be termed as a strong negative correlation. The negative correlation of FGT (1) and FGT (2) with FEMOWN and FEMLIT are also in the similar range. The positive association of FGT (0), FGT (1) and FGT (2) with child dependency ratio (CHID_{0-14}) are 0.652, 0.611 and 0.579 respectively which would be inferred as moderate positive correlation.

6.2 Regression Result

The result of OLS estimates of equation (1) is given in Table 4. The total number of observations are 75 as the data points consists of 75 geographical-administrative districts of Nepal. The regression coefficients of the explanatory variables are as prior expectation. The negative coefficient of FEMOWN (percentage of females with ownership of fixed assets) is statistically significant. The size of the coefficient of ‘FEMOWN’ is -0.699 which would mean that holding other variables constant if the number of households with female ownership of fixed assets increases by 1 percentage point, it would shrink the incidence of poverty by about 0.7 percentage point. The possible explanations on the likely ways of the strength of women’s ownership of fixed asset in poverty reduction are revealed in the literature review and theoretical
framework sections of this study. To reiterate the holding of assets by females performs two main functions: (i) as social safety: reinforces females’ ability to tackle aggregate shocks (e.g., financial crises, natural disasters) and individualistic shocks (e.g., divorce, illness, or death), and (ii) as a medium of income generation: provides productive capacity, ensures access to credit, capital, etc. Increase in the ownership and control of assets lowers vulnerability and hence poverty.

Table 4: OLS Results with FGT(0) as the Dependent Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>30.486</td>
<td>12.670</td>
<td>2.406</td>
<td>0.019</td>
</tr>
<tr>
<td>FEMOWN</td>
<td>-0.699</td>
<td>0.136</td>
<td>-5.154</td>
<td>0.000</td>
</tr>
<tr>
<td>FEMLIT</td>
<td>-0.262</td>
<td>0.096</td>
<td>-2.728</td>
<td>0.008</td>
</tr>
<tr>
<td>CHID_{0,14}</td>
<td>0.596</td>
<td>0.215</td>
<td>2.771</td>
<td>0.007</td>
</tr>
<tr>
<td>DUM</td>
<td>8.784</td>
<td>2.183</td>
<td>4.024</td>
<td>0.000</td>
</tr>
</tbody>
</table>

R-squared | 0.777 | Adjusted R-squared | 0.764 |
S.E. of regression | 6.517 | Akaike info criterion | 6.651 |
Sum squared resid | 2973.090 | Schwarz criterion | 6.806 |
Log likelihood | -244.416 | Hannan-Quinn criter. | 6.713 |
F-statistic | 60.893 | Durbin-Watson stat | 1.213 |
Prob(F-statistic) | 0.000 |

Source: Author’s estimation

The coefficient of the female literacy rate (FEMLIT) is negative and statistically significant at 99 percent confidence level. Its coefficient is of the size of -0.262 which would mean that by holding other variables constant if female literacy rate increases by one percentage point, it would help decrease poverty by about 0.26 percentage point. Several ways through which females’ education helps to empower them and thereby in poverty reduction are explained in the theoretical framework of this study. Literate females acquire the skill of reading, writing and numeracy which enables them to earn income and reduce poverty. Literate females in comparison to illiterate ones will have more chance to earn income by being involved in formal and informal jobs; they can more properly allocate their economic and other resources in activities that bring them income. Literate females can better handle their self-managed small businesses. In this way females’ education would be instrumental in reducing the incidence of economic poverty.

The positive and statistically significant coefficient of the variable CHID_{0,14} (percentage of children of age group 0-14 years in the total population) indicates the poverty raising effect of having more children. The size of the estimated coefficient of CHID_{0,14} is 0.596 which implies that all else being constant the increase in the proportion of children of age group 0-14 years would increase poverty rate by about 0.60 percentage point. In analysing the Nepal Living Standard Survey (NLSS) 2010/11 data Central Bureau of Statistics (2011) also found a positive correlation of poverty rates with the number of children under 7 years of age. As the number of children increases parents have to spend large part of their current income in nurturing and educating the children which results in the rise in expenses and if this is not matched by corresponding increase in income, level of poverty would rise. The increase in the number of children would reduce
savings that protect the families from income shortfalls. Children of age 14 years or below are not counted as part of labour force.

The positive and statistically significant coefficient of the dummy variable (DUM) suggests that mountain topography is a critical factor backing poverty in the highland of Nepal. It has been observed that the mountain region of Nepal seems less well off than the country’s average. The capital region (Kathmandu valley) grips more facilities and infrastructure than any other while the remote high mountain districts have the least (Kreutzmann, 2001). There is lack of basic services in the mountain and rural areas. The difficulties in basic facilities of life and their impact on poverty in the mountain region is also highlighted by Hunzai, et al. (2011) when they mention, “In much of the hill and mountain areas, which makes up more than three-quarters of the country, the terrain aggravates the problems of access to essential services such as health, education, and livelihood support. As a result, the prevalence and intensity of poverty in these regions greatly exceeds the national average” (p.43). Furthermore, Prennushi (1999) suggests that rural poor in Nepal suffer from inadequate education and health services and also from lower quality and high cost of the available services.

As indicated by the adjusted R-squared about 76.4 percent of the sample variation in the dependent variable FGT (0) (headcount measure of poverty) is explained by the estimated regression equation. The overall significance of the fitted regression model is adequate as shown by the significant F-statistic of 60.893 (with p-value of 0.000). This suggests that the explanatory variables entered in the multiple regression in totality exert impact on the poverty rate prevalent in the 75 districts of Nepal.

Thus based on the regression results given in Table 4 the hypothesis that females’ education and their ownership of immovable assets produce poverty reduction impact seems to remain strong. However the number of children of age group 0-14 years in the total population has poverty adding effect. The mountainous topography of the country also aggravates poverty rate.

The results of the OLS estimates with FGT (1) (poverty gap index) as the dependent variable with the same set of explanatory variables used in equation (2) are given in Table 5. The sign of all the regression coefficients of Table 5 are similar to that of Table 4. The coefficient of the variable ‘FEMOWN’ is significant at higher level of statistical precision though its size is reduced. The size of the coefficient of FEMOWN in Table 5 is -0.235 which would mean that all else remaining constant one percentage increase in the number of females with ownership of house and land would help reduce the district level poverty gap by about 0.24 percentage point. The explanation for this result is the same as given to the case of Table 4. The negatively-signed coefficient of the variable FEMLIT is significant at the probability level of 0.034. The magnitude of coefficient of FEMLIT is -0.070 which implies that other things remaining constant the increase in female literacy rate by 1 percentage point would lower the proportion of poverty gap denoted by FGT (1) by about 0.07 percentage point. The statistically significant positive coefficient of the variable CHID_{0-14} suggests that it is a potential variable of increasing poverty gap holding other things constant. The possible explanation for this result is the same as offered for the result given in Table 4. The statistically significant and positively-signed coefficient of the dummy variable (DUM) indicates that highland topography of Nepal itself is a factor aggravating poverty gap.
Table 5: OLS Results with FGT(1) as the Dependent Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>8.503</td>
<td>4.265</td>
<td>1.994</td>
<td>0.050</td>
</tr>
<tr>
<td>FEMOWN</td>
<td>-0.235</td>
<td>0.046</td>
<td>-5.153</td>
<td>0.000</td>
</tr>
<tr>
<td>FEMLIT</td>
<td>-0.070</td>
<td>0.032</td>
<td>-2.162</td>
<td>0.034</td>
</tr>
<tr>
<td>CHID_{0-14}</td>
<td>0.152</td>
<td>0.072</td>
<td>2.092</td>
<td>0.040</td>
</tr>
<tr>
<td>DUM</td>
<td>2.709</td>
<td>0.735</td>
<td>3.687</td>
<td>0.000</td>
</tr>
</tbody>
</table>

R-squared     | 0.737       | Adjusted R-squared | 0.722   |
S.E. of regression | 2.194       | Akaike info criterion | 4.473   |
Sum squared resid | 336.886     | Schwarz criterion    | 4.628   |
Log likelihood  | -162.755    | Hannan-Quinn criter. | 4.535   |
F-statistic    | 48.947      | Durbin-Watson stat  | 1.123   |
Prob(F-statistic)| 0.000       |                     |         |

Source: Author’s estimation

As indicated by the value of adjusted R-squared about 72.2 percent of the sample variation in the dependent variable FGT (1) (depth of poverty) is explained by the estimated regression equation. The overall significance of the fitted regression model is adequate as indicated by the significant F-statistic of size 48.947 (with p-value of 0.000). This implies that the explanatory variables included in the multiple regression model significantly influence poverty gap.

The third poverty measure used in this study is the severity of poverty denoted by the FGT (2) index. The results of the OLS estimate of a multiple regression with FGT (2) as the dependent variable and same set of explanatory variables entered in equation (2) is given in Table 6. The sign of the regression coefficients of all covariates with ‘FGT (2)’ as the response variable is similar to the result obtained by making ‘FGT (0)’ as the response variable. The size of negative and statistically significant coefficient of ‘FEMOWN’ is -0.100 which would suggest that holding the effect of other variables constant the increase in the number of households with females’ ownership of immovable assets (house and land) by 1 percentage point would contribute to reduce the severity of poverty by about 0.1 percentage point. Therefore it can be inferred that the possession of immovable assets like house and land by females of households would reduce poverty by shrinking poverty rate, poverty gap and severity of poverty.

Similarly, increase in females’ literacy rate (FEMLIT) by 1 percentage point would lower the severity of poverty (FGT (2)) by about 0.026 percentage point by keeping all else constant. In the FGT (2) equation the coefficient of ‘FEMLIT’ is statistically significant at the probability level of 0.067 that was significant at the probability level of 0.008 with FGT (0) as the dependent variable. The positive coefficient of the variable CHID_{0-14} is significant at the probability level of 0.102 (approximately at 10 percent level of significance) that was significant at the probability level of 0.007 with FGT (0) as the response variable. Thus the statistical significance of the
variable $CHID_{0-14}$ seems slightly reduced in the regression equation with FGT (2) as the dependent variable.

Table 6: OLS Results with FGT(2) as the Dependent Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>3.398</td>
<td>1.839</td>
<td>1.847</td>
<td>0.069</td>
</tr>
<tr>
<td>FEMOWN</td>
<td>-0.100</td>
<td>0.020</td>
<td>-5.096</td>
<td>0.000</td>
</tr>
<tr>
<td>LITRFEM</td>
<td>-0.026</td>
<td>0.014</td>
<td>-1.858</td>
<td>0.067</td>
</tr>
<tr>
<td>$CHID_{0-14}$</td>
<td>0.052</td>
<td>0.031</td>
<td>1.655</td>
<td>0.102</td>
</tr>
<tr>
<td>DUM</td>
<td>1.108</td>
<td>0.317</td>
<td>3.497</td>
<td>0.001</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.707</td>
<td></td>
<td></td>
<td>0.690</td>
</tr>
<tr>
<td>S.E. of regression</td>
<td>0.946</td>
<td></td>
<td></td>
<td>2.791</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>62.656</td>
<td></td>
<td></td>
<td>2.946</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-99.677</td>
<td></td>
<td></td>
<td>2.853</td>
</tr>
<tr>
<td>F-statistic</td>
<td>42.193</td>
<td></td>
<td></td>
<td>1.080</td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The dummy variable (DUM) continues to indicate that mountain topography aggravates the severity of poverty (FGT (2)) as it does to poverty rate (FGT (0)) and poverty gap (FGT (1)). In Table 6 the positive coefficient of ‘DUM’ with FGT (2) as the response variable is significant at high degree of probability precision (at 99 percent confidence level). The explanation for the significant effect of mountain dummy in the GFT(2) regression result is the same as offered for the case of FGT(0) as the dependent variable.

The finding of negative effect of education on poverty in this study is similar to some of the previous studies accomplished in the context of other economies, for example Dartanto and Nurkholis (2013) and Chen and Wang (2015) but finding of the present study that female’s education and female’s ownership of fixed assets has statistically significant negative effect on poverty reduction is new. Similarly the finding that larger number of children of the age group 0-14 years have the likely effect of adding up poverty is also new in the context that previous studies have either considered the household size or the overall age dependency ratio.

7. **Policy Implications**

The findings of this study have some policy implications that would work in efforts of poverty reduction particularly in the least developed countries that are similar to Nepal. The findings imply that expansion of female education and promotion of females’ ownership of immovable assets, and small size of child dependency ratio would help reduce poverty rate, poverty gap and severity of poverty.

The government of Nepal has introduced several initiatives to promote girls’ education in the country. Ministry of Education of the Government of Nepal has offered scholarships to girls at different levels of education. Girls of remote districts of the country are provided special
scholarships in the basic level of education (Grade 1-8) under which girls enrolled in the specific grade of basic education in the government funded schools are awarded some amount of cash scholarship. Scholarship is also provided to girls of Dalit community (backward community). There is provision of 10 percent reservation seat for females and girls of Janajatis in Bachelor of Engineering and Bachelor of Medicine and Bachelor of Surgery (MBBS) level of tertiary education.

Community Learning Centre (CLC) are run especially to literate females who could not get the opportunity of enrolling in school for formal education. The concept of CLC came about to solve the problems arising from the ad hoc and one shot natured Literacy and Non-Formal Education (NFE) programme launched by the Government of Nepal. The NFE essentially lacked permanent organization for its functionality. Actually CLC is a multipurpose institute of people established to promote learning new knowledge, skills and behaviours to improve people’s quality of life and living standard (Literacy Watch Committee of Nepal, 1999). As a result of the effect of these activities and increasing realisation of the importance of female education there has been progress in female literacy rate in Nepal. However females’ literacy is lower than males’ literacy. For example, in 1981 the literacy rates of male and female were 34 percent and 12 percent respectively which increased to 76 percent (male) and 57.8 percent (female) in 2011. There is male-female literacy gap in the rural and urban areas. For instance, in the census of 2011, the literacy rate of male and female in the urban area were 89.4 percent and 75.3 percent respectively but in the rural area the literacy rate of male and female were 73 percent and 53.9 percent respectively (G.C. & Shrestha, 2014). Therefore priority is still required to expand female education to reduce the gap between male and female.

To reduce poverty through women’s economic empowerment by granting them the right to the ownership of assets, countries first need the establishment of legal bases. Hence it is indispensable to undertake law reform, enacting new or revising existing law, to ensure women’s right to own or become heir to land and property in their own names and forbid gender-based discrimination (Benschop, 2002). In this context the Muluki Ain (Civil Code)-1963 of Nepal with the 2015 amendment has added several provisions of women’s property right. Today women in Nepal can enjoy their right to inherit property from birth. The provision in Number 1 of Chapter 14 of the Civil Code -1963 is that an unmarried women, on having a husband or a widow can use the movable or immovable property they have earned as they like. Likewise clause number 2 of the Civil Code 1963 states that an unmarried women, one having a husband or a widow who have been separated can use all the movable property of their share and up to half of the immovable property of their share without anybody’s consent. Likewise clause number 4 of the law guarantees that the movable and immovable property a women receives from her parents’ family and from her mother’s parents’ family and the property that she has increased from it proves to be her dowry. Women can use their dowry or exclusive property as they like.

Constitution of Nepal 2015 has further strengthened women’s economic rights. Clause 5 of Article 18 of the constitution guarantees equal right of all son and daughter on ancestral
property without any discrimination. Again, Clause 6 of Article 38 of the constitution grants the assurance of equal right of husband and wife on assets and family matters. All the aforementioned several legal provisions have definitely strengthened women’s capabilities in Nepal via increasing women’s access to and ownership of assets which are instrumental in reducing poverty in the country. In addition there is legal provision of reservation for female in Government sector’s civil employment, in the police, armed police and Nepal army. In the political arena also the Constitution of Nepal 2015 has made provision for the compulsory representation of women. Thus females’ economic and political rights have been made stronger by different laws and the constitution of Nepal, and they have helped in reducing the extent of poverty in Nepal.

As regard to the number of children in a household it is primarily the result of birth rate and survival rate. The crude birth rate (CBR) of Nepal declined to 22.4 births per thousand population in the 2011 census (Central Bureau of Statistics, 2014) from 39.7 births per thousand population in 1981 (Central Bureau of Statistics, 1987). Total fertility rate per women of the child-bearing age was 5.3 child in 1991 which declined to 2.3 in 2015 (Government of Nepal, Ministry of Finance, 2016). Infant mortality rate (per 1,000 live births) has also declined from 106 in 1991 to 33 in 2015. However total fertility rate (TFR) in the rural and mountain areas is still higher. For instance, TFR in the rural area was 4.75 in 2001 which declined to 3.08 in 2011 against urban TFR of 2.92 and 1.54 of the corresponding years. Similarly the TFR in the mountain and hill regions were 4.39 and 3.21 in 2001 and 3.73 and 2.45 in 2011 (Government of Nepal, Ministry of Finance, 2016). Expansion of health care services in different parts of the country, rise in the level of awareness of the health of mother and child among people, implementation of vaccination and immunization programmes by the government under different periodic development plans has made Nepal to make remarkable achievement in the health sector. In the view of the fact that fertility rate is higher in the rural and mountain regions relative to the urban there is need for the spread of general and health education in the rural and mountain areas to lower birth rates and reduce child dependency ratio. Health institutions and healthcare services are scarcely available in the rural and highland areas of Nepal. Hence government needs to accord top priority and work accordingly to expand health services in the rural and hilly region.

Poverty in the mountain region of Nepal seems to continue as a result of the combination of spatial disadvantages, remoteness, and weak agricultural and natural resource endowment. Additionally, insufficient investments in public infrastructure for instance roads, electricity, water supply, public schools, and health facilities, limit opportunities to escape from poverty for the people living in the mountain region. Climate change (rise in temperature, longer droughts, erratic rainfall, melting of glaciers) has been another threat to the people living in the upper hills and mountain region. Though the task of preparing and implementing poverty reduction programmes for the people living in the upper hilly regions of Nepal is not an easy task, Government has to introduce sustainable livelihood and poverty reduction programmes (SLPRP) in collaboration with International Centre for Integrated Mountain Development (ICIMOD), development partners and donors. These programmes should include enhanced and
diversified income opportunities for mountain people, establishment of market linkage for the specific products of the mountain people by expanding information, financial services and strengthening farmers’ groups, cooperatives and agri-businesses. Expansion of education for females and strengthening females’ ownership of assets in the rural and uphill regions are equally important in reducing poverty.

8. Concluding Remarks

Prevalence of poverty is a serious challenge for sustainable development and more equitable society. Therefore poverty reduction has been a key policy element especially in Third World countries. Nepal has made important achievement in poverty reduction over the period of 1993/94-2010/11 as indicated by the shrunk poverty rate, poverty gap and poverty severity indices. The empirical result of this study suggests that female’s education and their ownership of immovable assets (e.g., land and house) has the strength to reduce poverty in Nepal. These are definitely new evidences in implementing poverty reduction strategies. These findings provide indication in support of Nepal Government’s poverty reduction effort through expansion of female education and economic empowerment of women by providing them ownership of land and house. The findings of this study that larger child dependency ratio adds to poverty gives support to the notion of having fewer number of children. However one limitation on the general applicability of the result is the influence of “spatial heterogeneity” as the data are cross-sectional observations of diverse 75 districts of Nepal. The avenue for future research would be extent of women’s freedom to use assets under their ownership and poverty reduction.

References


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